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CONTENTS AND SUBJECT INDEX

The First Half-Century of the Section on Pediatrics: Chairman's Address. Frederic W. Schlutz, M.D., Chicago.....417

Hypertension, Obesity and Hyperglycemia. J. H. Musser, M.D., and D. O. Wright, M.D., New Orleans.....420

Discussed by Drs. John, Rony, Willius, Murphy, Horine, Nuzum and Musser.

Present Position of Our Knowledge of Anterior Pituitary Function. Herbert M. Evans, M.D., Berkeley, Calif.....425

Acute Leukemia in Children. Jean V. Cooke, M.D., St. Louis.....432

Discussed by Dr. Rodda.

The Systolic Murmur: Its Clinical Significance. Samuel A. Levine, M.D., Boston.....436

Discussed by Drs. Herrick, Smith and Levine.

The Clinical Value of Human Capillary Studies in Fever, Mental Deficiency, Nephritis, Vascular Diseases, Clubbed Fingers, Arthritis, Tobacco Smoking and Argyria. Irving Sherwood Wright, M.D., New York.....439

Discussed by Drs. Weiss, Barker and Wright.

Carcinoma of the Jejunum: Report of a Case. S. E. Barnhart, M.D., Battle Creek, Mich.....443

Atopy to Acacia (Gum Arabic). A. D. Spielman, M.D., and H. S. Baldwin, M.D., New York....444

CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS

Modification of Hank's Cervical Dilator. Raymond L. Bradley, M.D., Houston, Texas.....445

Death Following Ingestion of Five Grains of Acetylsalicylic Acid. B. R. Dysart, M.D., Pasadena, Calif.....446

Atropine Poisoning: Recovery After 7½ Grains of Atropine Sulphate by Mouth. Bernard I. Comroe, M.D., Philadelphia.....446

COUNCIL ON PHARMACY AND CHEMISTRY 447

COMMITTEE ON FOODS 448

EDITORIALS

Etiology of Heat Cramps.....450

Recent Studies of Vitamin C....450

Glomerular Function.....451

CURRENT COMMENT

Spontaneous Rupture of the Aorta.452

The Structural Changes in Human Psittacosis.....452

(Subject Index on next page)

ASSOCIATION NEWS 453

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Other Important SAUNDERS BOOKS on Page 3

SUBJECT INDEX TO THIS ISSUE

The letters used to explain in which department the matter indexed appears are as follows: The Star (*) indicates an Original Article; "ab," abstract; "E," Editorial; "C," Correspondence; "Ml," Medicolegal; "ME," Medical Economics.

A. M. A. Section on Pediatrics, first half-century *417
Acacia, atopy to *444
Acid, acetylsalicylic, death after taking 5 grains *466
ascorbic, in suprarenal cortex E-450
Actinomycetes and staphylococci ab-480
Age, changes in brain in normal involution ab-490
Alvarenga Prize awarded 455
Amidopyrine-fast fever ab-487
Amyloidosis, atypical ab-489
Anaphylaxis, alimentary, and fever of unknown origin C-464
Anemia, hypochromic, iron in ab-478
Anesthesia, amytal, in obstetrics 468
for electrosurgical removal of tonsils ..ab-481
Aneurysm, tuberculous aortic ab-490
Angina, agranulocytic ab-477
Antibodies in placenta extracts ab-480
Aorta rupture, spontaneous E-452
Aortitis, tuberculous ab-490
Argyria, capillary studies *439
Arsenic poisoning, sodium hydrosulphite for ab-482
Arteriosclerosis, use of iodized proteins in .. 467
Arteritis, syphilitic pulmonary ab-478
Arthritis, capillary studies *439
Asphyxia, accidental, treatment 458
Association News **453**
Asthma, atopy to acacia *444
Atropine poisoning *446
Backache, radiologic study in ab-482
Bladder infections, treatment ab-479
Blood, acute circulatory weakness ab-487
hypertension, obesity and hyperglycemia .*420
picture in acute leukemia in children *433
pressure in diabetics *421
pressure in healthy male adults ab-484
pressure, venous determination C-464
vessels, diseases, capillary studies *439
Body, living human, spectrum analysis in ... 466
Bone atrophy after fracture ab-487
Book Notices **470**
Books Received ..... **Adv. page 30**
Botulism, Clostridium in frozen fruits ... ab-480
Brain, changes, in normal involution of age ab-490
"grasping" movements and tonic innervation ab-483
British Medical Association, council condemns fee splitting 458
Bureau of Investigation **463**
Cancer, butyric acid for ab-484
campaign planned, South Dakota 455
inoperable, roentgen irradiation in ab-489
International Congress on 456
producing substances of shale, tar and paraffin 457
treatment, antiserum 457
Capillaries resistance, simple test for ab-477
studies in fever, etc. *439
Carbohydrate metabolism and diabetogenic hormone *431
Caritol for cataract treatment 465
Child health conferences, Indiana 454
health conference, West Virginia 456
health, program for, Indiana 454
*di*Chlorethyl Sulphide, residual effects C-464
Committee on Foods **448**
Correspondence **464**
Council on Medical Education **470**
Council on Pharmacy and Chemistry **447**
Cramps, heat, etiology E-450
Cranium, repair of cranial wall by grafts .ab-486
Creosote burns of eye 465
Deaths **462**
Diabetes Mellitus, diabetogenic hormone ... *431
hypertension in *421
trophic ulcer in 468
true, and pseudodiabetes ab-481
Drugs, erythemas due to medicines 458
Dysentery, lactose fermenting coliform bacilli in ab-485
Eclampsia, infection of placenta and fetus in ab-485
treatment, parathyroid, vitamin D and calcium ab-489
Eggs, iodized 460
Encephalitis, streptococci isolated in ab-480
Epididymis tuberculosis, treatment ab-485
Epilepsy, seizures vs. jugular foramina .. ab-481
Erythemas due to medicines 458
Evidence: judicial notice; morphine as derivative of opium Ml-476
Exophthalmos, retrogression after ovarian therapy ab-488
Eye, creosote burns of 465
Fee splitting, council of B. M. A. condemns . 458
Fetus, infection in eclampsia ab-485
Fever, capillary studies *439
of unknown origin C-464
Fingers, clubbed, capillary studies *439
Foramen lacerum posterius, relation to epileptic seizures and hydrocephalus .. ab-481
Foreign Letters **457**
Fractures, bone atrophy after ab-487
Fruits, frozen, Clostridium botulinum in .. ab-480
Gases, war, residual effects C-464
Glycosuria, metabolic disorder with 466
Gonad-stimulating hormone from pituitary tissue *427
Gonorrhea, chronic, irrigation and massage in 468
mercurochrome intravenously in 467
use of silver nitrate in urethra 469
Gout, diet in 466
Growth hormone of pituitary *426
Hank's cervical dilator modification *445
Harvey, William, memorial to 456
Health, Arizona state department establishes sanitary division 453
at Schenectady 455
Michigan state department stops distributing some products 454
public, problems in Europe 456
St. Louis department reorganized 454
units, financing, Florida 453
Heart conditions, common ab-483
diseases, quinidine treatment ab-486
effect of tobacco on 458
electrocardiography, lead points in 465
murmur, systolic *436
standstill (induced), vs. drugs ab-478
Heat cramps, etiology E-450
Hickling, D. P., retires 453
Hospitals, optimum atmospheric conditions in . 466
Hydrocephalus vs. jugular foramina ab-481
Influenza, amidopyrine-fast fever ab-487
Insanity, in Criminal Relations: evidence; witnesses, lay; admissibility of testimony Ml-476
Insurance, accident: pimple; death following squeezing of Ml-475
accident: poisoning by sodium fluoride . Ml-476
Intestines adhesions ab-482
ileus ab-488
Intussusception in children ab-490
Iodized proteins in arteriosclerosis 467
eggs 460
Istanbul University, reorganization 460
Jejunum cancer *443
Joannovic, Georges, death 461
Johnson Memorial Medical Building 455
Keratitis, rosacea ab-489
Kidney, effects of phenolphthalein on 469
glomerular function E-451
Kings College Hospital Medical School, London 456
Leprosy, skin tuberculosis in ab-489
Leukemia, acute, in children *432
chronic myelogenous, treatment 467
Liver extract in pellagra ab-477
Lungs, anatomy, fund needed to publish work 456
Lymphatic System, enterococci in phlegmonous adenitis of neck ab-486
Lymphogranuloma, biologic test in ab-484
Mabry, A. G., portrait 453
Marriage and syphilis 461
Marriages **462**
Meader, C. N., resigns 453
Measles, immune adult blood for ab-481
Medical and Professional Woman's Journal .. 456
Medical Association of South Africa 456
Medical Practice Acts: physical therapy license not authority to practice medicine Ml-475
prosecutions; injunctions; unrevoked license a bar to prosecution Ml-475
Medicine, profession, changes, Germany 459
state, profession's control in England 457
Medicolegal **475**
Meetings, Coming Meetings **476**
Meninges, hemorrhage, spontaneous subarachnoid ab-477
Mental Deficiency, capillary studies *439
Mental Disease, prize for research on 456
Metabolism, Basal, and thyrotropic hormone *429
Migraine, ergotamine tartrate for ab-483
Miller, William S., work on anatomy of lung 456
Mycoses, cutaneous, in school children 461
Nails, onycholysis 468
Narcotics, government monopoly, Turkey 460
Neck, enterococci in phlegmonous adenitis ab-486
Nephritis, capillary studies *439
News **453**
Nodes, juxta-articular, relation to syphilis . ab-486
Obesity and anterior pituitary function *430
hypertension and hyperglycemia *420
Otitis Media, Gradenigo's syndrome ab-490
Ovary therapy of exophthalmos ab-488
Paralysis, bulbar 469
general, of insane, atypical traits ab-490
Pediatrics, progress *417
Pellagra, liver extract in ab-477
Peptic Ulcer and human psyche ab-488
Peterson, Reuben, retires 454
Phenolphthalein, effects on kidney 469
Phosphatases of organism ab-489
Pioneer Mutual Health and Benefit Insurance Co. 454
Pituitary Body, anterior function *425
Placenta extracts, antibodies in ab-480
infection in eclampsia ab-485
Pneumonia, amidopyrine-fast fever ab-487
lobar, serum therapy ab-478
Politics and medical profession, Germany ... 459
Polycythemia rubra, roentgen therapy ab-488
Prinzhorn, Hans, death 460
Prolan *428
Prostatitis, chronic nonspecific 466
Pseudodiabetes and true diabetes ab-481
Psittacosis, human, structural changes in .. E-452
Purines, diet in gout 466
Pyramidal apex, inflammation ab-490
Queries and Minor Notes **465**
Radio Program **453**
Reflexes, "grasping" and "tonic innervation" ab-483
Saratoga Spa, begin work on 455
Scabies, outbreak, Germany 459
Scarlet Fever and acetonemic vomiting .. ab-487
Sex hormone of pituitary *427
Skin tuberculosis in lepers ab-489
Society Proceedings **476**
Sodium morrhuate, use in thrombophlebitis . 468
Spectrum analysis, use in living human body . 466
Spine, multiple tuberculous spondylitis ab-490
Staphylococci and actinomycetes ab-480
State Board Examinations **470**
Sterilization, sexual, eugenic, Germany 459
Stomach disorders, surgical ab-488
Streptococci, cataphoretic velocity in encephalitis ab-480
Students, Medical, refuse to take new examination, Paris 458
Suprarenals, adrenalotropic hormone *431
cortex and vitamin C E-450
Syphilis in children ab-485
juxta-articular nodosities relation to ab-486
marriage and 461
Testicle, torsion 469
Thrombophlebitis, use of sodium morrhuate in 468
Thyrotropic hormone and respiratory metabolism *429
Tobacco smoking, capillary studies *439
effect on heart 458
Tonics and Sedatives ..... **Adv. page 24**
Tonsillectomy in small children 465
electrosurgical, anesthesia for ab-481
Tubercle Bacilli, culture from blood (Lowenstein's) ab-480
Tuberculin test, free, at Illinois state fair .. 454
Tuberculosis, lack of milk a cause of, England 457
statewide campaign, Conn 453
Tumors, inoperable, roentgen irradiation in ab-489
Typhoid in Atlanta, Ga 454
Ulcer, trophic, in diabetes 468
Urethra discharge, so-called aseptic 469
use of silver nitrate in 469
Urinary Tract, infections, bacteriophage therapy ab-490
Urine, copper content ab-479
Urography, excretory ab-483
Uterus, Hank's cervical dilator modified ... *445
cancer, prevention 466
Vegetables, frozen, Clostridium botulinum in ab-480
Venereal Disease, new law concerning, Belgrade 461
Vital Statistics of German cities 459
Scottish 457
Vitamin C, recent studies E-450
Vomiting, acetonemic, and scarlet fever .. ab-487
Water metabolism, disturbance 466
Workmen's Compensation Acts: eye; loss of remaining eye Ml-476
malpractice by physician; liability for .. Ml-475

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THE FIRST HALF-CENTURY OF THE SECTION ON PEDIATRICS

CHAIRMAN'S ADDRESS

FREDERIC W. SCHLUTZ, M.D.

CHICAGO

The Section on Pediatrics of the American Medical Association has passed the half-century mark. It is a fitting time to pass in review its past and to take note of the growth, the changing trends, the progress and the achievements of this important section, and to recall the names of colleagues identified with its development, not a few of whom were in the truest sense makers of American pediatric history.

The Section on Pediatrics was organized as an independent section of the American Medical Association at its thirty-first annual meeting held in New York City in 1880. Abraham Jacobi, whom probably quite a few in this audience will recall and who is regarded with reverence by all of us as the father of American pediatrics, was the founder of the organization.

After an eloquent address by Dr. Jacobi on the claims of pediatric medicine, Dr. S. C. Busey of Washington, D. C., offered a resolution creating the Section on Pediatrics as the sixth section of the American Medical Association. To quote from a chairman's address of many years ago, "Dr. Busey was the accoucheur on this happy occasion and Dr. Jacobi stood Godfather for the tender infant."

When asked in his later life how the organization of the Section came about, Jacobi had this to say, "There is no history, we just did it. It was a clear case of spontaneous generation. The Section was in the air and we were present when it condensed — that is all."

At the first regular meeting in Richmond in 1881, Dr. Jacobi presided as the first chairman, and Dr. T. M. Rotch of Boston was the first secretary. Dr. Jacobi's address at that meeting was on "The Progress in Knowledge of the Acute Contagious Diseases and Infections."

Previous to 1880, the work of the Section was done in the Section on Obstetrics and Diseases of Women, and consisted in an occasional paper on some pediatric subject. It was the time when a few lectures tacked on to the chair of obstetrics sufficed to fill the pediatric curriculum requirement of the medical school of that day.

In 1883 THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION first appeared, and it is from the date of this meeting, the thirty-fourth held in Cleveland, that we have the first printed record of the doings of the Section.

The meeting place has always coincided with the meeting of the American Medical Association and has, including this session, been held in twenty-eight different cities of the United States. It is a strange coincidence that the 1893 meeting, during the Columbian Exposition, was held in Milwaukee, and again, forty years later, at the time of the Century of Progress Exposition in Chicago, the meeting is held in the same city.

The Section meeting in Milwaukee in 1893 was an excellent one. In the chairman's address delivered at the sixteenth session of the Section, the Milwaukee meeting of 1893 is lauded as the best one ever held by the Section up to that time, and the hope was expressed that future programs and conduct of the Section might be modeled after that memorable meeting.

I had not come across this item when the present Section meeting and program were organized, but I hope that you all will share with me the comfortable feeling that this meeting in Milwaukee is again going to be a memorable one, and that we are indeed living up to the hopes and expectation of our earlier colleagues.

Of the fifty-two past chairmen of the Section, twenty-six have passed on to their reward. Among these are some of the notable names of early American pediatrics and the founders of this organization.

There is no accurate record of attendance at the earlier Section meetings except an occasional allusion in a secretary's report. At the organization of the Section, forty members were present. At a meeting in New Orleans in 1895, 175 members attended the Section. The number has always fluctuated and depended somewhat on the meeting place of the Section. In later years, the number has often reached several hundred.

The early years of the Section were marked by a struggle for existence and independent identity. Tacked on as a tail end appendage to gynecology and obstetrics by our medical forefathers, pediatrics emancipated itself from this impracticable and archaic bond and union and under the leadership of Jacobi developed into the major branch of medicine which it is today.

The chairman of the Milwaukee meeting in 1893 speaks feelingly of the tottering footsteps of the childhood period of a great organization, of the difficulties which attended the development of an imperfectly differentiated section, of the lack of cohesion and cooperation which resulted from a diffuse and unstable membership, but speaks in praise of the fighting hearts

From the Department of Pediatrics, University of Chicago.

Read before the Section on Pediatrics at the Eighty-Fourth Annual Session of the American Medical Association, Milwaukee, June 14, 1933.

of the men of that day and the earlier time who made the Section what it was then and what it was destined to be.

It appears from the records that at the fortieth meeting of the American Medical Association, the ninth year of the Section, a motion was brought in to discontinue the Section on Pediatrics. The impassioned address at that time of Dr. Larrabee of Louisville, Ky., the chairman, and his convincing plea saved the Section, and such a motion was never again brought up.

At the same meeting a motion was also made that the secretary preserve the records of the Section and pass them on to his successor. To make the work more efficient and to establish the Section's autonomy firmly, the chairmen at the Milwaukee meeting of 1903 suggested the following propositions:

To cultivate a more intimate social relation among the members, the custom of some of the sections to hold an annual social reunion is to be commended, and the chairman recommends such reunions to be a fixture of the Association. (Except for the San Francisco meeting in 1894, when too few members attended, a Section dinner has been an annual feature of every Section meeting.) He recommended, also, the prompt publication of full reports of the proceedings of the Section and a careful preparation of the program for each meeting, the topics to be on timely and interesting subjects and such as will elicit good discussion.

At the fiftieth meeting of the Association and the nineteenth of the Section on Pediatrics, held in Columbus, Ohio, the chairman, Dr. Tuley of Louisville, mentioned it as one of the most dignified and important sections of the Association. He recorded with satisfaction a gradual increase in the recognition of pediatrics in the medical literature, in the schools of the day and in general and special practice. He recommended a permanent secretary for the Section and that the volume of the transactions should record biographic sketches of the members of the Section who died during the year.

The length and size of the Section program were about this time beginning to be a matter of growing concern. At the meeting in Baltimore in 1895, the rule was made that the papers of the members should not be longer than twenty minutes in the reading and that the discussor be allowed not more than fifteen minutes, and that this rule be strictly enforced. This rule became important as the Section began to grow and the programs grew to inordinate length.

The programs of the Section meetings of the late nineties often reached the prodigious size of more than thirty and even forty papers. In view of the length of the papers, one wonders how the chairmen of those days managed and emerged from a meeting with friendships intact. Section meetings which were originally intended only for afternoon sessions grew out of bounds and were held all day. At the fiftieth meeting of the Association, it was voted to hold the Section meetings only in the afternoon. At the fifty-second meeting of the Association in St. Paul in 1901, it was voted to limit the papers to members of the Section only, and one member could not present a paper in more than one section.

The following year at the Columbus meeting it was voted to limit the number of papers in any one section to forty. It is evident that the urge to write and the flood of literature are not altogether new symptoms and characteristics of our day.

Drastic limitations on the speakers, more careful selection of the program and the time element alone gradually reduced the program to reasonable size and content and one that could be managed within the allotted time.

At the sixtieth annual meeting of the Association in 1909 at Atlantic City, N. J., the Section presented a resolution that:

1. Pediatrics should be represented in the curriculum by a full professorship independent of any other chair.
2. The study of pediatrics should be compulsory and be required for graduation.
3. The time allowance for the course in pediatrics should not be less than two hundred hours.

These important resolutions were adopted and now form the basis on which the pediatric departments of practically all of the leading medical schools of the country are organized.

At the sixty-first annual meeting of the Association, held in St. Louis, the Section recommended to the trustees of the American Medical Association the establishment of a pediatric journal to be known as the *American Journal of Diseases of Children*. This was the beginning of what has today become one of the leading pediatric journals of the world.

At the seventy-second annual meeting of the Association, the forty-first of the Section, held in Boston in 1921, the chairman, Dr. Neff, recommended the creation of a fund to further scientific research, aid individual effort and defray the expenses of the secretary's office, the fund to be administered by a committee and to be known as the Abraham Jacobi Fund in honor of the founder of the Section.

By 1924 the accumulations of this fund permitted the committee to set apart a certain sum to be used in defraying, in part at least, the expenses of a foreign guest who might be invited. In 1924 the Section entertained as foreign guests Dr. Heinrich Finkelstein of Berlin and Dr. Leonard Findlay of Glasgow. In 1926 two distinguished Latin-Americans were the guests—Dr. Arturo Aballi of Cuba and Dr. Leon Velasquez Blanco of Argentina. In 1929 Dr. Giuseppe Caronia of Italy and Dr. Ernst Freudenberg of Germany were the guests. In 1930 Dr. Edward Mellanby and in 1931 Dr. Leonard Parsons, both of England, were the guests of the Section. Today we are honored by the presence of a distinguished colleague from Holland.

The conduct of the meetings of the Section during its infancy was delightfully informal. It was not unusual for the chairman, the secretary or both not to show up for the meeting, or not to appear until the second day—an unthinkable situation in our present day, but apparently complacently accepted at that time. The regular printed or announced program would often not be followed because the essayist likely as not would not show up. Volunteers were then called for and seemed to be available in abundance. Sometimes a volunteer read two papers at the same meeting. Thus it is recorded of a Dr. Earle of Chicago that he read his second volunteer paper on "A Plea for Pleasant Medication and a More Thorough Study of Infantile Therapeutics." At the same meeting, a Dr. Boothby of Wisconsin was excused from reading his paper on "Croup and Diphtheria, Their Unity or Duality," as a paper by a Dr. Harris from Virginia covered the same ground and embodied the same views.

If the discussion on papers grew too long, it was often postponed until the following day, just as a court is recessed. The meetings were not altogether without

discipline, as is shown by a motion that Dr. Casebeer, evidently an essayist on the regular program, read by title a paper which he had not thoroughly prepared.

At the eighty-first annual session in 1930, the section adopted a recommendation to change its name to "Section on Pediatrics." This recommendation, in the form of a resolution, was presented to the House of Delegates in 1931 and was adopted. The By-Laws, however, were not amended until 1932, at which time the change in name became effective.

The transactions of the Section and a complete printing of all of the papers given at the Section meeting have appeared since the year 1898.

A brief review of the programs of the last five decades reflects probably better than anything else the problems and the trend of thought of the period and the real progress that was made in meeting and conquering the successive difficulties which beset the pediatric practitioner in the development of our special field in medicine. It marks, also, the great advance we have made in the conquest of the diseases of infancy and childhood and in our knowledge of preventive care and protection.

The earlier programs of the decade from 1883 to 1903 still reflect some rather primitive pediatrics. Dentition and all its supposed dangers and causative influence on disease have a prominent place on the early programs. The subjects most discussed were diphtheria and membranous croup. No program was without several papers on these subjects. The subject next in importance was bloody discharges from the bowel. Poliomyelitis was first mentioned in the program of 1889.

The subject of child training and physical education in children is first discussed in the programs of the early nineties. Along with this newer thought, however, a bit of older pediatric teaching creeps in. On the program for 1902 appears the title, "Should Infants be Washed Directly After Birth," and another one, rather amusing but probably a sensible observation for the time, "On the Absence of Cow's Milk from Japan: Its Beneficial Consequences." As stated before, the 1893 Milwaukee program was memorable on account of its excellence and the diversity of subjects discussed. It introduced also for the first time the idea of symposiums on a given topic. Diphtheria and pneumonia in childhood were discussed.

The decade from 1894 to 1903 marks many distinct advances. The entity of diphtheria and the distinction between true and false croup were definitely established. The value of diphtheria antitoxin was clearly recognized. This fact and the practice of intubation had tremendously reduced the mortality of this dreaded disease.

There was a good deal of interest in enteric and typhoid fever, and no program was without a paper or two on alimentary disorders.

Increasing interest is shown in the subject of tuberculosis from the late nineties on.

This period marks the introduction of the milk laboratory and with it a new era in the sanitation of milk which in turn became a large factor in the reduction of infant mortality. The year 1896 to 1897 marks the first appearance as contributors to the section programs of some notable names in American pediatrics: Dr. Holt, Dr. Kerley and Dr. Griffith. Dr. Koplik had preceded them by several years, and they were followed shortly by Hollopeter, McClanahan, John L. Morse and our own Dr. Abt.

Rickets is discussed for the first time in a Section program in 1899.

The meeting of 1901 was marked by an imposing symposium on typhoid fever. At the same meeting the use of the x-ray as a diagnostic measure is first mentioned by Dr. W. W. Keen, who reported the location of a ureteral calculus by its aid.

Artificial feeding is given much space on the programs, and the meeting in 1903 at New Orleans had as a principal part of the program a symposium on artificial feeding and its relation to the diarrheal disturbances of childhood.

Breast milk and breast milk feeding were beginning to get considerable attention.

The decade from 1904 to 1913 marks new trends, new interests and again a distinct march forward. The sanitation of milk is much discussed, and in connection with it the various forms of bacillary dysentery. There is a distinct movement to return to breast feeding and to break away as much as possible from artificial feeding.

Jacobi's famous paper on "The Gospel of Top Milk" given in the 1908 session set up an entirely new line of clinical investigation in infant feeding, and foreshadowed many of the changes that were to come in later years in this important field of pediatrics.

Studies of metabolism in myxedema were first suggested in a paper given at the 1905 meeting. Treatment with rest for patients with anorexia, the use of lactic acid bacilli and of lactic acid in certain alimentary disturbances, feeding on the basis of caloric values for food and the use of vaccine and serum therapy were subjects discussed in the programs of the early section meetings of this decade.

It again marks the first appearance of a notable group in American pediatrics — Amberg, Ruhräh, Royster, Freeman, Chapin, Knox, Pisek, Graham, Hamill, A. F. Hess, Howland, Blackfan, Talbot and Sedgwick—as contributors to the Section program. In the latter part of the decade one comes across the names of Porter, DeBuys, R. M. Smith, O. M. Schloss, Cooley, Brennemann, J. Hess, Gerstenberger, and Grulee with their first offerings.

This decade is characterized by a great awakening with reference to the problem of infant mortality. In the chairman's address of the twenty-eighth session of the Section in 1908, Graham deals with this subject. He pointed out that 50 per cent of the deaths of infants were preventable and listed a number of factors which he regarded as important in lessening infant mortality, among them inspection of milk, free antitoxin, improved sanitation, good food, antenatal care, teaching of hygiene in the schools, breast feeding and pasteurization of milk during hot weather.

Jacobi had pointed out publicly the enormous mortality in the foundling institutions of New York City and as a consequence was asked to resign from the hospital staff.

The subject of infant mortality, child welfare and preventive pediatrics looms large on nearly all the Section programs from 1910 on, and is discussed by a number of the chairmen in their addresses.

In this decade occurred the first extensive epidemiologic studies of acute anterior poliomyelitis.

Allergy is discussed for the first time in the program of the 1912 meeting.

There is a continued interest in the subject of tuberculosis and the possible defensive mechanism of the body against it.

The pioneer work of Cooley clarified much about hemorrhagic diseases, and the value of the roentgen ray in pediatrics was first stressed by a number of authoritative clinicians.

This decade is notable, also, for the appearance for the first time on its programs of physiologic or biochemical studies relative to pediatrics; it marks the beginning of an era of scientific investigation which has placed American pediatrics on a high plane.

The decade from 1914 to 1923 is marked by consolidation and enlargement of the gains made in the previous one. The years of the World War fall within this period. The inevitable decline of European pediatrics was counterbalanced by our distinct rise.

Preventive pediatrics is a prominent subject for discussion on every program.

The splendid scientific investigation of Howland, Gamble, Marriott, Hess, Park Talbot and many others contributed much of the newer knowledge in the field of nutrition. Vitamins for the first time made their appearance on the programs.

The importance of sinus infections as possible disease factors is frequently discussed.

Two significant symposiums, one on poliomyelitis in 1917 and a later one on other contagious diseases, mark the great interest in this decade in these subjects.

Encephalitis appears for the first time on the programs as a subject of discussion.

The splendid studies of Jeans on syphilis fall within this period.

Children's teeth and their care are discussed for the first time.

The work of Bilderback, Beifield and Weston clearly established the identity of acrodynia.

Blood transfusions as a form of therapy were first advocated and quite extensively used during this period.

This decade also marks the first use of active immunization against diphtheria.

In this decade (July 10, 1919) falls the death of the beloved founder of this Section, Abraham Jacobi, one of the great figures and leaders in American pediatrics.

The remaining decade from 1924 to the present time is marked by progress in many fields. This is particularly true in the field of nutrition and in the study of deficiency diseases, such as rickets and scurvy.

The research on the photodynamic effect of light and the translation of such effect to therapeutic use resulted in many contributions on this subject.

The programs of this decade are marked by a number of important symposiums: one on appendicitis at the 1924 session, one on diseases of the upper respiratory tract in 1925, one on tuberculosis and on rheumatic heart disease in 1927, and one on diseases of the renal tract at the 1931 session.

Great strides have been made in the immunization against and the control of contagious diseases.

Preventive pediatrics no longer needs champions for its cause. It is now entirely accepted and quite universally practiced.

Child psychiatry and psychology, always a neglected field, is now a very live topic and one that has increasing interest for the Section.

The White House Conference, a magnificent inventory of all pediatric accomplishment to date, completed its work only a short time ago and marks a contribution hardly equaled anywhere for the usefulness and good that it may do.

We pause at the half-century mark; with pardonable pride the Section may regard the past, with courage and confidence it may look to the future. The course is quite clear; we must live up to the past traditions and must build even better for the future. The Section should always remain a central rallying point of American pediatrics and should be our chief contact with the body at large of our profession. It must be one of the chief sponsors for any movement that makes for better child care, welfare and protection.

At least two factors are, I believe, of prime importance in accomplishing our ends. Considerable thought and much care must be used in the preparation of the Section program, and we must discourage in every way possible any movements or organizations which tend to dispersion or detraction of interest in the Section and its work.

Proper regard for these two factors will, I confidently believe, mean insured success and continued prestige for an organization of which we may justly be proud.

HYPERTENSION, OBESITY AND HYPERGLYCEMIA

J. H. MUSSER, M.D.
AND
D. O. WRIGHT, M.D.
NEW ORLEANS

The association of hyperglycemia and hypertension has been observed repeatedly and there has been a considerable literature accumulated which has to show that these two conditions are by no means unusual in combination.[1] The common relation of obesity to hypertension has likewise been appreciated for many years, but the frequency with which hyperglycemia occurs in obesity is a more recent observation. It would seem reasonable to expect that if hypertension and hyperglycemia are frequently associated, if obesity and hypertension are likewise often linked together and if hyperglycemia is common in the obese, it is quite likely that these three disturbed physiologic states would be prone to occur together, rather than in combination of any two of them. Such has been our experience. We have observed in a group of thirty obese patients with hypertension sugar tolerance curves that approach those of the diabetic patient. This group composed most of the elderly fat women not suffering from some acute infection who were admitted to a female medical ward in the Charity Hospital over a period of nine months. It is our impression that the syndrome of hypertension, obesity and reduced sugar tolerance is, as is to be expected and anticipated, quite common.

HYPERTENSION AND HYPERGLYCEMIA

Neubauer,[1] twenty-three years ago, was the first to note the occurrence of high blood sugar and high blood pressure and advanced the hypothesis that it was due to overactivity of the suprarenals. O'Hare[1] studied the dextrose tolerance curves of twenty-three patients

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Read before the Section on Practice of Medicine at the Eighty-Fourth Annual Session of the American Medical Association, Milwaukee, June 16, 1933.

1. Hagelberg, M.: Hypertension und Blutzucker, Berl. klin. Wchnschr. **50:** 40, 1912. Härle, F.: Hypertonia and Sugar Content of Blood, Ztschr. f. klin. Med. **92:** 124 (Nov.) 1921. Herrick, W. W.: Hypertension and Hyperglycemia, J. A. M. A. **81:** 1942 (Dec. 8) 1923. Iwai, S., and Lowy, F. E.: Hyperglycemia in Hypertension, Klin. Wchnschr. **3:** 1440 (Aug. 5) 1924. Mohler, H. K.: Hypertension and Hyperglycemia, J. A. M. A. **84:** 243 (Jan. 24) 1925. Neubauer, E.: Ueber Hyperglykamie bei Hochdrucknephritis und die Beziehungen zwischen Glykämie und Glykosurie beim Diabetes Mellitus, Biochem. Ztschr. **25:** 284, 1910. O'Hare, J. P.: Glucose Tolerance Test in Vascular Hypertension, Am. J. M. Sc. **160:** 366, 1920.

with chronic vascular hypertension with normal renal function. Seven of these patients showed nothing abnormal in regard to dextrose metabolism, whereas eleven showed a definite rise in blood sugar and five of the eleven cases presented a glycosuria at the end of three hours. He suggested that these patients were potentially diabetic. He was unable to correlate the dextrose tolerance test with the degree of arteriosclerosis present in these patients. In 1923, Herrick [1] studied patients with hypertension and found that increased concentration of the dextrose in conjunction with the elevated pressure indicated that there were four cardinal symptoms of the condition in addition to the two already mentioned, obesity and arteriosclerosis being likewise added. In six typical examples of this syndrome, all of them presented evidence of cardiovascular overstrain. Herrick suggested a subdivision of essential hypertension based on this symptom complex. The sequence of events, as he suggested, was low dextrose tolerance, hence overburden of the pancreas; this naturally would be followed by increase in weight and then by an increased tendency to arteriosclerosis and later by an increase in blood pressure.

Mohler,[1] in 1925, discussed hypertension and hyperglycemia in forty-six patients who had a systolic pressure of over 150 mm. of mercury, and glycosuria. Thirty-seven of these patients were obese. These patients did not show any greater evidence of peripheral vesicular sclerosis than would be anticipated from their age. Mohler advances the idea that degenerative changes take place in the body, affecting the structures involved in carbohydrate metabolism, impairing their efficiency and resulting in hyperglycemia. Obesity favors the development of such sclerotic changes.

Mosenthal [2] lists a considerable number of authors who contend that there is a common relationship between hypertension and hyperglycemia and a somewhat smaller group who do not think that there is any association between elevated arterial pressure and increased glycosuria. He compared the blood pressure readings with thirty-one dextrose tolerance tests and found that there was no rise in blood pressure with the temporary increase in blood sugar, demonstrating that transient hyperglycemia does not influence the blood pressure. Seven cases of diabetes presenting hyperglycemia of varying degree over a period of seven years failed to show an increase in blood pressure. He believes because of this finding that the hyperglycemia which is prolonged does not affect blood pressure, although it does not exclude the possibility that a hyperglycemia through increased polyuria with consequent tissue desiccation may favor the development of arteriosclerosis.

Comparative Blood Pressure Readings of Diabetic Men and Women

	Men			Women		
	Obese	Not Obese	Total	Obese	Not Obese	Total
Number.....	18	72	90	119	135	254
			Average			Average
Systolic.....	148	138	140	171	143	158
Diastolic.....	87	79.8	81	96	86.5	90

HYPERTENSION IN DIABETES

In an endeavor to determine the frequency of an elevation of blood pressure in the diabetic patient, a survey was made of 453 records of patients who were in the Charity Hospital longer than twenty-four hours. Further, an effort was made to distinguish between those who were undernourished and those who were obese. The accompanying table gives the result of the blood pressure in these patients. It should be noted that the obese patients were not classified as such unless decidedly overweight. It is rather interesting to speculate on why there was a very much greater number of fat diabetic women than there were men, the percentage being more than double in the former. It can be noted also that in these fat diabetic patients the systolic pressure in the men was only 10 mm. higher than in the male diabetic patients who were not overweight, whereas in the female the average systolic pressure in the obese was 28 mm. of mercury higher than in the average woman who was not fat.

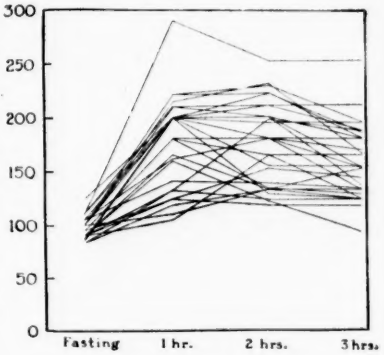

Chart 1.—Composite blood sugar curves of thirty obese hypertensive patients.

Hypertension in the diabetic patient is, of course, a frequent finding. As Joslin has so frequently pointed out, the diabetic patient sooner or later develops arteriosclerosis, so it is to be expected that hypertension will occur in the majority of cases as the disease progresses. It is of interest to note that the obese diabetic patient, an individual who presumably has mild diabetes, has, according to our figures, a considerably more elevated blood pressure than does the thin diabetic patient who represents a more severe type of case.

Kramer [3] studied 570 cases of diabetes and found that 39 per cent (195 patients) had a blood pressure of 150 mm. of mercury or above. He states that "it is unlikely that diabetes through its hyperglycemia produces hypertension."

OBESITY AND HYPERTENSION

The obese person characteristically has a hypertension. As expressed by White,[4] it is common for the obese to have hypertension. It is not necessary to discuss in detail this particular phase of the obese-hypertensive-hyperglycemia syndrome. Preble [5] studied the blood pressure of 1,000 obese individuals. His figures indicate that there is a definite, but by no means extreme, increase in the blood pressure, both systolic and diastolic, for the different age groups. Thus, in the group in the fifth decade of life, the average systolic pressure was 150 mm. and diastolic 98. In the present series, dextrose tolerance tests on thirty-one obese patients without diabetes or chronic nephritis were found to be within normal limits.

OBESITY AND HYPERGLYCEMIA

John [6] reports twelve cases of obesity of which nine were in women, in whom the overweight ranged from 29 to 15 per cent. Glycosuria was present in two of

2. Mosenthal, H. O.: The Relation of Blood Sugar to Blood Pressure, Am. J. M. Sc. **176:** 761 (Dec.) 1928.

3. Kramer, D. W.: Hypertension and Diabetes, Am. J. M. Sc. **176:** 23 (July) 1928.

4. White, P. D.: Heart Disease, New York, Macmillan Company, 1931.

5. Preble, W. E.: Obesity, 1,000 Cases, Boston M. & S. J. **188:** 617 (April 26) 1923.

6. John, H. J.: Relationship of Obesity to Carbohydrate Metabolism, Am. J. M. Sc. **173:** 184 (Feb.) 1927.

these cases and in eleven of them the fasting blood sugar was normal. Forty-two per cent of the group showed either the blood sugar curve of mild diabetes or definite diabetes. His suggestion is that the pancreas may be responsible, as a result of dysfunction, for obesity of the endogenous type. Allison,[7] in studying a group of twenty patients who were overweight, found that approximately half of the group had a decreased sugar tolerance. In his group were included eight persons who had a preexisting glycosuria, so that of twelve who were simply obese only three had a sugar response which indicated that they had abnormal sugar tolerance.

SUGAR TOLERANCE CURVES IN THE OBESE HYPERTENSIVE INDIVIDUAL

We have studied a group of thirty patients who ranged in age from 34 to 67. They were all women and were all decidedly overweight. The average age of the group was 52.5 and their average weight was 192 pounds (87 Kg.). The average blood pressure with a mercury manometer was 204 systolic, 118 diastolic. The systolic blood pressure ranged from a high of 254 to a low of 174. The diastolic pressure ranged from the extreme of 144 to 88. None of these patients had glycosuria before the dextrose was given. Eight of them had mild glycosuria at the end of three hours. In only one instance was there more than a very faint trace of sugar, in which case it was 1 per cent. One hundred grams of dextrose was given by mouth and the first specimen of blood was taken at the end of one hour, the second two hours later and the third three hours afterward. The sugar estimations were done according to the method of Folin-Wu. The mean curve for the group showed a fasting blood sugar of 97.7 mg. per hundred cubic centimeters; one hour later it was 176.2; two hours later, 174.6, and the third hour, 163. A variety of curves were elicited which it seems useless to reproduce individually; consequently, they are presented as a group. As a whole, the patients all maintained the typical response to dextrose exhibited by the diabetic, prediabetic or patients who have a reduced tolerance to sugar. A corresponding control group of nine obese patients without hypertension was studied.

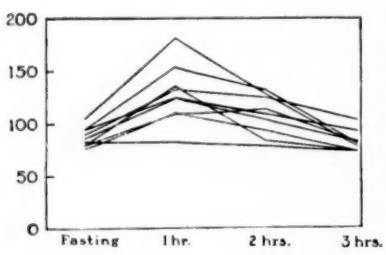

Chart 2.—Blood sugar curves of nine obese patients without hypertension.

In only one instance was there exhibited a curve comparable to that of the fat hypertensive person. In this instance, one hour response showed a rise of figures to 181, which subsided in two hours to 80. In the control group the average weight was 191 pounds (86.6 Kg.). The age averaged exactly ten years under that of the test group. The blood pressure in all these individuals was within normal range.

Further analyses of the curves were made in order to determine the effect of age on the sugar tolerance determinations. A group of eleven patients whose age was below 50, averaging 42.8 years, gave a curve that showed a fasting blood sugar of 91, rising to 162, falling to 142 at the end of the second hour and 133 at the end of the third hour. This age group compared with the obese patients without hypertension, whose average age was 42.5. In the patients above 50, the average age was 58; the curve began at 95 mg. of sugar and registered 190 at the end of the first hour, 196 at the end of the second hour, and 171 at the end of the third hour. These two curves would seem to indicate that the hypertension might play an important rôle in the production of hyperglycemia. In other words, the age of the younger obese hypertensive individuals was almost exactly the same as those without hypertension, and yet their tolerance of sugar was markedly reduced. On the other hand, it might just as well be argued that the diminished tolerance to sugar plays an important rôle in the production of hypertension. In the latter older group, in which it is safe to assume that arterial disease of various degrees was present, the curve certainly suggests that arteriosclerosis and degenerative changes, possibly in the arterial system and parenchyma of the pancreas, helped to exaggerate the lowered tolerance to sugar.

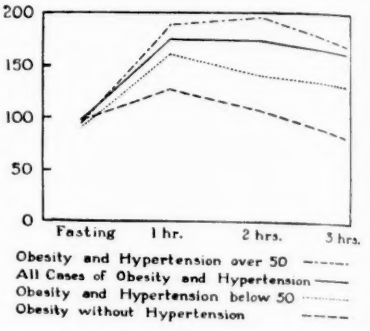

Chart 3.—Comparison of the blood sugar curves in obese hypertensive persons over and under 50 years of age and obese patients without hypertension.

One or two interesting curves were noted. In one instance, a woman who weighed 278 pounds (126 Kg.) and was 5 feet 8 inches (172.7 cm.) in height, had a blood pressure of 230 systolic, 125 diastolic, with a fasting blood sugar of 100. At the end of the third hour the blood sugar was 20 mg. higher than at the end of the second hour; in other words, it was still ascending. Another patient had a very marked rise from a fasting blood sugar of 86 to 200, dropping in an hour to 130. The highest blood sugar at the end of two hours was 230 mg.; this occurred in a woman, aged 60, 5 feet 1 inch (155 cm.) tall, whose blood pressure was 245 systolic, 130 diastolic. The lowest figure was in a patient whose curve rose from a fasting sugar of 95 to 125, and fell to 119 in both the second and third hour observations. The blood pressure was 190 systolic, 100 diastolic. Patient 23 was a woman 5 feet 8 inches (172.7 cm.) in height, weighing 195 pounds (88.5 Kg.). She had a blood pressure of 188 systolic, 100 diastolic; the fasting blood sugar was 95, which rose to 181 and fell to 135 and then to 130. She was put on a low carbohydrate diet and with careful attention to her food intake lost 35 pounds (15.9 Kg.). Her blood pressure then was found to be 168 systolic, 100 diastolic; the fasting blood sugar was 90; it rose to 140 and fell to 125 the second hour and to 111 at the end of the third hour. The response to treatment will be reported in a later communication.

COMMENT

We have presented the average figures obtained from a group of fat women who had an elevated blood pressure and hyperglycemia. These patients were selected because they were fat and had high blood pressure, in order to study their blood sugar response to a given amount of dextrose administered by mouth. This was done to determine whether their obesity was associated with the inability properly to utilize carbohydrate and to see whether there was any definite relationship

7. Allison, R. S.: Carbohydrate Tolerance in Overweight and Obesity, Lancet **1**: 537 (March 12) 1927.

between the hypertension and the sugar curve. It was found that all these patients exhibited a lowered tolerance to sugar, but whether or not this had any relationship to their hypertension cannot be definitely stated. It would seem that there is a definite syndrome in which obesity, hypertension and hyperglycemia are associated, probably with ultimate arteriosclerosis. However, in respect to the latter, in no one of our patients was arteriosclerosis clinically demonstrable. It is safe to assume that many of the patients did have arteriosclerosis, a statement which can be partially substantiated by the fact that the age group was ten years greater than in the control group and by the fact that it is rather difficult to conceive of pressures as high as some of the systolic and diastolic pressures in these individuals existing without a concomitant peripheral sclerosis.

In contrasting the group of younger hypertensive individuals with those of the same age period without hypertension, it is impossible to say whether the hypertension or the reduced tolerance to sugar was responsible, on the one hand, for the hyperglycemia or, on the other hand, for the hypertension.

The relation of the diminished sugar tolerance to hypertension is one about which a definite statement cannot be made either from the data that we have studied or from a review of the work of others. The correlation is so constant, however, that it would seem as if there might be some relationship to the lowered sugar tolerance other than that of the development of arteriosclerosis in a fat individual who has a hypertension. It might be possible to speculate and to advance many theories (impairment of carbohydrate storage mechanism as age advances,[8] delay in secretion of insulin,[9] kidney dysfunction and suprarenal action) as to why the obese hyperglycemic patient has a hypertension or why the obese hypertensive patient has a hyperglycemia, but none of these can be substantiated definitely.

In our group it is doubtful whether the factor of menopausal endocrine disturbances might possibly have some effect, as many of the patients had passed the menopause; some had not reached the menopause and only three of them could be said to be in the menopausal zone. We do not believe, therefore, that the syndrome of hypertension, obesity and hyperglycemia is a menopausal phenomenon.

The relationship of the obesity to the hyperglycemia is obvious. The obese individual is much more likely to develop diabetes than is the thin person. It naturally follows that several of the individuals of this group were obese hypertensive persons who could be classified as prediabetic.

It would seem to us that no one cause could be definitely stated as being responsible for the hypertension, the hyperglycemia, or the obesity in this group of patients who present all of these three abnormal conditions. Rather it would seem that the combination of the three conditions aggravating or intensifying one another would be the explanation for the greater pressure, the lessened response to sugar and possibly also the obesity for the group as a whole. All the factors taken together make a vicious circle which ultimately will develop in a well marked vascular sclerosis with its attendant complications and remote effects. Fundamentally it would seem that the obesity was the most important physiologic-pathologic disturbance; the obesity is directly related to the hyperglycemia, evidenced by a diminished ability properly to metabolize food substances (carbohydrates).

In the obese individual the obesity is probably a constitutional state that is hereditary. The inherited tendency to fatness is exaggerated and intensified by the inability to take care of carbohydrates and in many instances by other factors, such as overeating and insufficient exercise. With the overweight there is an elevation of blood pressure and finally arteriolar sclerotic changes that may in turn intensify the blood pressure. These sclerotic changes, however, are certainly not early but rather late developments that occur tardily in the course of the syndrome. The fundamental basis for the syndrome would then seem to be obesity with its diminished sugar tolerance, and the control of the condition would seem to be in the adequate treatment of the obesity through carbohydrate reduction. Reduction in weight frequently produces lowering of the blood pressure and the return of the sugar tolerance curve to a relatively normal one.

SUMMARY

A group of thirty obese hypertensive women exhibited a marked lowering of sugar tolerance. A second group of fat individuals without hypertension are shown not to have a hyperglycemia. It seems reasonable to assume that there is no one factor definitely responsible for the combination of obesity, hypertension and hyperglycemia unless it is obesity. The reduction in weight is often associated with a lowering of the blood pressure and a return of a sugar tolerance curve to normal.

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ABSTRACT OF DISCUSSION

DR. HENRY J. JOHN, Cleveland: The incidence of diabetic curves during dextrose tolerance tests in a series of 459 cases summarizes effectively my experience along this line. There are nearly three times as many diabetic curves in the obese as there are in the normal weight patients. It coincides with what has been pointed out in the literature; namely, that obesity predisposes to diabetes. Next is the question of overweight in 528 cases of diabetes. Again the same criterion comes out forcibly; namely, that more than three fourths of patients who have diabetes are or have been overweight before the diabetes developed. This means that patients with normal weight lost weight because of diabetes. In 1,828 patients with diabetes in whom the blood pressure was studied, I found that one half of those of overweight had a pressure above 140, but only one fourth of those of normal weight. I feel, therefore, that the whole problem comes down to one important point; namely, the question of obesity. The treatment of obesity is, of course, very discouraging, and more thought ought therefore to be devoted to prevention. Those who have to treat obesity will agree that it is the most discouraging problem in the whole field of medicine, whereas the prevention of obesity is a much easier problem. I feel that the prevention of obesity will prevent many other conditions that accompany obesity.

DR. HUGO R. RONY, Chicago: Low sugar tolerance is common in hypertension, regardless of the body weight. Therefore a specific connection between hypertension and low sugar tolerance with obesity could be claimed only if practically every hypertensive obese person would show a low sugar tolerance, and no obese person with normal blood pressure would have low sugar tolerance. This appears to be the case according to the authors' observations, but I am unable to confirm this on the basis of my own data. Out of my seventy-two cases of obesity, all in women above 30 years of age, forty registered blood pressures below 150 systolic, with an average of 130

8. Spence, J. C.: Some Observations on Sugar Tolerance, with Special Reference to Variations Found at Different Ages, Quart. J. Med. **14**: 314 (July) 1921.

9. Woodyatt, R. T.: Some Milder Forms of Diabetes, with Special Reference to Mild Diabetes in Elderly Persons with Arteriosclerosis, South. M. J. **17**: 145 (March) 1924.

systolic, 83 diastolic. This group is considered a normal blood pressure group. In fifteen of these forty the sugar tolerance was decidedly low, twelve of them showing marked glycosuria during the test. Accordingly, more than one third of my obese patients with normal blood pressure showed a markedly or extremely low sugar tolerance. In thirty-two cases the systolic blood pressures were above 150, the average being 175 systolic, 110 diastolic. In this hypertensive group, seventeen cases showed low sugar tolerance, of which ten exhibited glycosuria at some time during the test. However, the sugar tolerance was normal or even high in fifteen cases; that is, in almost half of this group. These observations do not support the idea of some basic connection of obesity, hypertension and low sugar tolerance. It appears rather that there is some connection between the age of obese patients and the sugar tolerance. I observed that high sugar tolerance is frequent and that low sugar tolerance is rare in the juvenile obese patients, while the opposite is true for the adult obese patient. There are probably several factors instrumental in the frequent change in sugar tolerance with age in obesity. Some of these factors may be due to changes in the aging endocrine system. But the chief factor is probably exogenous in nature: young obese patients, having high sugar tolerance, crave carbohydrates, and with the increased carbohydrate intake overtax their mechanism for carbohydrate utilization, which in turn after years becomes exhausted and inefficient. Hence the shift in sugar tolerance with advancing age.

DR. FREDERICK A. WILLIUS, Rochester, Minn.: The emphasis of the authors on the clinical triad hypertension, obesity and hyperglycemia has been of importance. I wish to confine my remarks to the heart in obesity. The data have been derived from a postmortem study of 136 cases recently completed by Dr. H. L. Smith and me. In all cases the epicardial deposit of fat was increased, in some instances to such a degree that the heart was virtually encased in fat. In practically all cases the fat penetrated into the muscle substance, being deposited in large quantities between the muscle bundles and muscle cells, particularly of the right ventricle. There was not any instance in which a deposit of fat in excess of normal was found within the cytoplasm of the cells. The localization of the fat we believe to be important. Fat is deposited within the cytoplasm of cells predominantly in such states as phosphorus and chloroform poisoning, pernicious anemia, leukemia, and the cachexia of cancer. In 38 per cent of the cases, associated cardiac disease was not demonstrable. Varying degrees of heart failure occurred in 7 per cent of the cases in which pathologic changes other than the increased deposit and penetration of fat did not occur. Of the patients, 44 per cent had had hypertension, and 11 per cent miscellaneous forms of associated heart disease. The weight of the heart in all cases was increased. In the group of patients without associated disease of the heart the average weight exceeded that of the normal hearts of persons of average body weight by 38 per cent; in the group of patients with heart failure but without associated cardiac disease, by 65 per cent, and in the group of patients with hypertension, by 72 per cent.

DR. FRANCIS D. MURPHY, Milwaukee: Reports concerning the incidence of hypertension in diabetic patients have varied according to different authors. Figures have been given showing an incidence as high as 39 per cent and others as low as 14 per cent. In reviewing the complications in 827 cases of diabetes, I found hypertension in 102, or only 11 per cent. Of course, if obese diabetic patients alone were considered, the incidence of hypertension would be a great deal higher. I should like to know from the authors whether blood cholesterol determinations were made of any of the cases. The relationship of hypercholesterolemia to diabetes is well established. The relationship of hypercholesterolemia to arteriosclerosis is not so well established, while the relationship between hypercholesterolemia and hypertension is questionable. I had blood cholesterol determinations made on every patient with hypertension that came into the hypertension and nephritic clinic of the Milwaukee County Hospital for seven years and I came to the conclusion that there was no relationship between hypercholesterolemia and hypertension. More recent work, especially in Germany, has thrown a different light on the subject. It has been pointed out that the amount of blood cholesterol itself is not the deciding factor but that the disturbed ratio between the blood cholesterol and the plasma protein, the albumin and the globulin, is the factor that influences blood pressure. The solubility of the cholesterol is dependent to some degree on the plasma albumin and globulin. It was shown that with a normal blood cholesterol there may be an oversaturation with cholesterol or that there may be an undersaturation of the blood with cholesterol. It was found that hypertension was associated with a supersaturation of the blood with cholesterol in 90 per cent of cases, while in nonhypertensive cases there was no oversaturation with cholesterol in any case.

DR. EMMET F. HORINE, Louisville, Ky.: The study of Drs. Musser and Wright brings up some speculative problems. The question that arises is whether the relationship that exists between hypertension and diabetes above the age of 40 is not more apparent than real, since each disease is encountered with greater frequency in the decades above 40. This age incidence may also partly explain the well known association of arteriosclerosis with diabetes. Thirty obese hypertensive patients of the authors exhibited dextrose tolerance curves similar to those of diabetic patients. Their control group of nine nonhypertensive obese patients gave only one curve at all comparable to the fat hypertensive person; hence they conclude that there is a syndrome of hypertension, obesity and hyperglycemia. Hypertensive obese patients often have abnormal dextrose tolerance curves, but possibly it is the pathologic state accompanying the increased blood pressure that provokes the peculiar response to dextrose, and not the obesity. Since widespread involvement of the arterioles throughout the body exists in essential hypertension, it would seem that arteriosclerosis in the pancreas and especially in the islands might be the cause of the changes in carbohydrate metabolism noted by the authors. Thus a study of a series of patients with advanced essential hypertension, regardless of whether they are fat or lean, should reveal a preponderance of abnormal dextrose tolerance curves. Actually, O'Hare, in a study of the dextrose tolerance in hypertension, came to the conclusion that many hypertensive patients are potentially diabetic. Recently in analyzing 233 cases of diabetes admitted to the Louisville City Hospital, I found that 85 (36 per cent) had hypertension. Normal blood pressure levels were found in 106 (46 per cent) and levels below normal in 42 (18 per cent). I may say that before the fortieth year diabetes and essential hypertension rarely occur together but that after this period they are frequently observed in the same individual because of the same age incidence and probably because of the additional factor of disturbance of carbohydrate metabolism secondary to arteriolar changes in the pancreas of the potentially diabetic hypertensive patient. The more I study essential hypertension the more firmly convinced I become that, aside from a hereditary background, its causation cannot be explained at present.

DR. F. R. NUZUM, Santa Barbara, Calif.: I would call attention to another function of the pancreas that may be concerned with hypertension. Abelous and Bardier in 1903 first called attention to a depressor substance in the urine. Pribram and Herrnheiser in 1902 recorded that the nondialysable fraction of human urine caused a fall in blood pressure when injected into experimental animals. E. K. Frey and H. Kraut in 1928 reported exhaustive experiments with this vasodilator substance present in the urine, which, they found, was elaborated by the pancreas, circulated in the blood, and had to do with the regulation of the peripheral circulatory balance. They believe this is a hormone. This substance is an epinephrine antagonist. From work by Frey and Kraut and from that by my associate Dr. A. H. Elliot and myself, this substance has been shown to exert a regulatory influence on arterial tonus. Since it opposes the most powerful pressor substance in the body, epinephrine, and since its presence and amount in the urine can be accurately determined, we have approached the problem of hypertension by measuring the amount of this so-called hormone in the urine of normal persons and of those with essential hypertension. The urine of fifty persons with systolic blood pressures over 150 mm. of mercury was studied. As a control series, the urine of fifty adults with systolic pressures under 140 mm. was used. We found that the excretion of this substance bears a definite correlation with the age of the individual. In the control group under 40 years of age, the twelve-hour output averaged 3,800

units; from 40 to 60 years, 2,773 units, and over 60 years, 1,530 units, a drop in each group of, roughly, 1,000 units. In the group of fifty individuals with essential hypertension, those under 40 years of age averaged a twelve-hour output of 1,695 units; those between 40 and 60 years averaged 1,333 units, and those over 60 years averaged 635 units. The possibilities of this hormone as related to treatment are pertinent. The pancreas elaborates this material, which neutralizes the effect of the vasoconstrictor, epinephrine. Our studies have shown a lessened output of the hormone in hypertension. There is as yet no accurate method of determining the amount of epinephrine in the circulating blood; but if it is present in an abnormal amount or if its constricting action is not sufficiently opposed by a depressor substance, hypertension might well result.

DR. JOHN H. MUSSER, New Orleans: Dr. Wright and I do not mean to imply that every fat woman who has passed the age of 40 and who has a hypertension necessarily has to have a hyperglycemia, nor do we mean to imply that every fat woman past the age of 40 who has a hyperglycemia necessarily has to have a hypertension. A goodly number of them do, however, and I think they present a rather interesting syndrome. In the majority of instances their outstanding complaints are cardiovascular rather than metabolic, yet it is through the control of the metabolic process, which I believe is fundamental, that the cardiovascular disturbances are kept in check. I can answer Dr. Murphy by saying that we have not made cholesterol estimations on these people.

PRESENT POSITION OF OUR KNOWLEDGE OF ANTERIOR PITUITARY FUNCTION

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One of the most dramatic chapters in the progress of modern medicine is the story of the evolution of our knowledge of the pituitary body, that minute glandule situated almost in the mathematical center of the head, regulating as it does those fundamental mechanisms of growth, reproduction and even the power of the body to conduct its normal metabolic machinery. The story, too, is only typical for what may be told of other parts of the endocrine mechanism of the body so that I trust that this meeting of the Congress of American Physicians and Surgeons may gain significance in the future as having marked a turning point in the kind of interest displayed toward certain fields of medical research.

We are conceivably at the inauguration of a new era, an era which shall witness the same startling disclosures and confer on us the same beneficent instruments of prevention and control as characterize what I may term the bacteriologic epoch so gloriously inaugurated by the labors of Louis Pasteur and Robert Koch. Endocrinology, which suffered obstetric deformation in its very birth by the extravagant claim of the septuagenarian Brown-Séquard that he had magically restored his youth with testicular substance, has continued to suffer the same sort of obloquy through similar claims of the modern Steinach school, whereas to be an endocrinologist among the practicing profession today means too often to be primarily concerned with making fat ladies thin. In research, matters are hardly better. No institute of any importance devoted to medical or biologic research has concerned itself wholly or even partly with the field of the endocrines, and few university departments have done so. Yet this kind of inquiry has given to medicine the greatest single new therapeutic achievement in our day—the discovery of insulin. And the domain of endocrinology, both for clinical study and for laboratory investigation, affords a realm where, in many phases, exactitude in observation and quantitative results may be assured.

It is of special significance, too, Sir, that you [1] preside at this meeting. It was you who had the courage to attack the problem of the essentiality or nonessentiality of the pituitary gland for life itself and to show error in the claims of the Rumanian surgeon Paulesco that, following complete hypophysectomy, death need inevitably supervene. It is to your early efforts that we owe the first experimental production of the adiposogenital syndrome in animals—it is to them that we owe the earliest inquiry into the upset of carbohydrate metabolism, which is so thrilling a chapter in the narrative of current discovery, so that quite apart from the production by you [2] in 1912 of a clinical monograph which shall forever be a landmark in this subject, we owe a series of studies into the physiology, normal or disordered, of the pituitary, the most recent but surely not the last of which, is your recognition of the new clinical syndrome furnished by basophilic adenomas [3] —studies so abundant that with them alone my whole brief hour here could easily be concerned.

To the historian of science it will perhaps appear remarkable that so long a time was consumed by the period of indecision as to whether the hypophysis was or was not essential for life; he will, of course, be aware of the fact that in this epoch surgical technic was in full possession of asepsis, anesthesia and the control of hemorrhage and had not hesitated to enter the calvarium, succeeding, for instance, in the difficult removal of brain neoplasms and other intricate procedures.

To what, then, may be attributed so long a dispute as that waged by skilful experimenters over the dispensability or indispensability of the gland? This may be attributed to two causes: first, to the deaths that followed mysteriously within a few days the operations of very skilful surgeons, where the complicity of infection and hemorrhage were eliminated but where we now know brain injury was inevitable; and, second, to the tardiness with which successful experimenters furnished that indubitable proof of complete removal given by subsequent sacrifice of the animal and microscopic exploration by serial section of the whole contiguous base of skull and brain; persisting fragments are now known to exercise a beneficent influence which is outstanding. As regards this point, seven pieces of research have now adequately furnished the criteria essential for establishing the fact that no portion of the hypophysis is essential for the continuance of life itself.

As regards the first point, in spite of great skill, misfortune attended those early investigators who chose a dorsal or lateral temporal opening of the calvarium from which the singularly deep hypophysis is hardly accessible without contusion of the brain. Thus the features of the syndrome once designated as cachexia

Read before the Congress of American Physicians and Surgeons, Washington, D. C., May 10, 1933.

1. Reference is made to Dr. Harvey Cushing, president of the congress.
2. Cushing, Harvey: The Pituitary Body and Its Disorders, Philadelphia, J. B. Lippincott Company, 1912.
3. Cushing, Harvey: The Basophil Adenomas of the Pituitary Body and Their Clinical Manifestations (Pituitary Basophilism), Bull. Johns Hopkins Hosp. **50**: 137-195 (March) 1932.

hypophysiopriva were really all due to the almost unavoidable brain injury and none of them to injury to the gland itself.

Approach from below, through the sphenoid, either through the nose, mouth [4] or pharynx,[5] especially in forms like the rat, in which not only is the cavity of Turk's saddle well separated from the cavum cranei by the diaphragma sellae but the pituitary is fortunately not firmly attached to its sheath and can be aspirated without traction on or rupture of the diaphragma, or again the clever use of Weed's contrivance for physiologic "shrinkage" of the brain by intravenous hypertonic salt solution [6] has enabled a considerable and growing number of operators to remove the whole gland in a high proportion of all cases without immediate postoperative fatalities. The achievements of Smith,[5] Dandy and Reichert,[6] Reichert,[6] Van Dyke and Wallen-Lawrence,[7] Pencharz,[8] Selye [9] and others have answered in the negative once and for all the question as to imminent death from removal of the pituitary. Complete removal of the gland is compatible with the continuance of life. Future research will sustain me, however, in stating that it will be possible to prove that mal-effects from the ablation occur immediately and continue to grow graver even though they do not for a considerable time imperil life.

Complete ablation of the gland invariably leads to a serious abnormal state variously tolerated by various individual animals. Some long survivals and many moderately long ones have been secured by the investigators mentioned. Most hypophysectomized animals, surviving the operation, succumb from this cachexia before anything like a normal life span has been passed. It can be confidently predicted that the marked limitation in the life of hypophysectomized animals will become apparent as soon as even approximate statistics become available concerning the fate of large numbers of such animals under ideal conditions; i. e., when submitted to no subsequent procedures and surrounded with every hygienic care. It cannot be said that investigators have intentionally obscured this truth by failure to publish their mortality data; they have merely had more immediate duties—they have wisely employed such animals in various physiologic tests involving risk and they have intentionally sacrificed most of them for study.

These surgical triumphs have in a way, then, closed one era in experimentation in this field; but in a more important sense they have inaugurated another one, for they have now furnished the most conclusive test objects conceivable for replacement therapy—the only final answer as to whether or not all the essential chemical substances furnished by the gland have been captured in extracts.

4. McLean, A. J.: Transbuccal Approach to Encephalon in Experimental Operations upon Carnivoral Pituitary, Pons, and Ventral Medulla, Ann. Surg. **88:** 985 (Dec.) 1928.

5. Smith, P. E.: The Disabilities Caused by Hypophysectomy and Their Repair, J. A. M. A. **88:** 158 (Jan. 15) 1927; Hypophysectomy and a Replacement Therapy in the Rat, Am. J. Anat. **45:** 205 (March) 1930.

6. Dandy, W. E., and Reichert, F. L.: Studies on Experimental Hypophysectomy: Effect on Maintenance of Life, Bull. Johns Hopkins Hosp. **37:** 1 (July) 1925. Reichert, F. L.: The Results of Replacement Therapy in a Hypophysectomized Puppy: Four Months of Treatment with Daily Pituitary Heterotransplants, Endocrinology **12:** 451 (July-Aug.) 1928.

7. Van Dyke, H. B., and Wallen-Lawrence, Z.: On the Growth-Promoting Hormone of the Pituitary Body, J. Pharmacol. & Exper. Therap. **40:**413 (Dec.) 1930.

8. Reichert, F. L.; Pencharz, R. I.; Simpson, Miriam, E.; Meyer, Karl, and Evans, H. M.: Ineffectiveness of Prolan in Hypophysectomized Animals, Proc. Soc. Exper. Biol. & Med. **28:** 843-844 (May) 1931.

9. Collip, J. B.; Selye, H., and Thomson, D. L.: Gonad-Stimulating Hormones in Hypophysectomized Animals, Nature **131:** 56, 1933.

THE GROWTH HORMONE

The condition produced by complete removal of the hypophysis is, as has been explained, an abnormal one, although adult animals, save for genital regression, may not for some time show external deviation from normality and thus disguise the fact that both function and structure of the body have suffered serious change. Moreover, it is a safe prediction that as increased analysis of the bodily mechanism of hypophysectomized animals is made, other features of the state which can be strictly designated cachexia hypophysiopriva will increasingly come to light. On the other hand, when the gland is removed from young animals, the most impressive evidence that normal processes have been interfered with is soon furnished by their failure to grow.

If the anterior lobe has been completely removed, growth stasis is immediate and almost, if not quite, absolute and careful postoperative registration of body dimensions by the measurement of skiagrams [6] will bring conviction here. It is indeed only in this way that proof may be secured of the totality of the removal. The growth stasis carries with it also the survival of the status quo as far as the childlike proportions and many if not all juvenile structural peculiarities—such as the possession of only milk dentition, the characteristically fine (lanugo) hair coat, and open epiphyseal cartilages. Yet this state is hardly the desirable one of "perpetual youth," for the capacity of the body in many measurable ways has been injured. Nor, structurally, have we permanent youth, for we now know that many abnormal anatomic changes begin to intervene slowly — changes which mark off these dwarfs as peculiar — e. g., the actual shrinkage of the epiphyseal cartilages, the gradual obliteration by dentin of the pulp cavities of the incisors,[10] and so on. There seems no question but that we have to do with disturbance of calcium metabolism after hypophysectomy, as reflected in the decreased calcium content of the blood; whether this is due to the correlated subnormality of the parathyroid glands remains to be established. Changes in the parathyroids as a result of hypophysectomy have not been adequately studied as yet. It is difficult to view the cessation of growth of the skeletal system as essentially due to disturbance in the inorganic metabolism; it is more justifiable to refer it to a singular failure in cartilage proliferation in the epiphyseal disks and, of course, the dwarfism is participated in by all the organs and tissues of the body. The experimental production of hypercalcemia in hypophysectomy by means of parathyroid extract has not yet interested any experimenter.

To what extent have the growth defects of hypophysectomized animals been remedied by the conveyal to them of growth hormone? To a complete extent. In the cases of a very great number of hypophysectomized dwarf rats and in several hypophysectomized puppies completely normal stature or stature slightly in excess of normal has been thus obtained. Reichert's work with hypophysectomized puppies warns us that such growth hormone extracts must be free of gonadotropic effect else the provocation of sexual maturity may be associated with epiphyseal closure and the cessation of growth.

Hypophysectomized animals are enormously more sensitive to growth hormone than are normal ones and

10. Schour, I., and Van Dyke, H. B.: Effect of Hypophysectomy on the Incisor of the Rat, Proc. Soc. Exper. Biol. & Med. **28:** 934 (June) 1931.

they thus constitute the test material *par excellence* for quantitative measures of the growth hormone in extracts. But since they are not easy to produce in large numbers or to maintain in good health, it is fortunate that satisfactory growth tests [11] can be carried out by administering growth hormone to certain mammalian forms in which, though adulthood is reached, epiphyseal closure is singularly delayed and power to grow under stimulus retained for most of the span of life. I refer to rats and mice. Like some of the lower vertebrates, fish and turtles, the rat grows almost throughout life but it does not do so with anything like a uniform rate. Though its epiphyses are open, its adulthood is indicated by a sharp change, even if not a halt, in the growth rate and by very slow accretions of body substance after that date. We are always safely past this knuckle of the growth curve by the fifth month of life in the case of the female and the seventh month in the male, and we now use just these animals on which to confer by our various extracts unusual growth. That this growth is not adiposity but is participated in by all the tissues of the body is shown by roentgenograms of the skeletal system and by the chart of their various organ weighings. The point I wish to bring out at present is that in our modern efforts to get the growth hormone in pure form we no longer feel compelled to treat animals for many weeks or months but select animals at any time between the fifth and the ninth month of life, when they are on the so-called growth plateau. We follow the accretions of their body weight at five day intervals for three or four weeks, and if an approximate plateau can be demonstrated for an individual we call it a satisfactory test animal and convey to it intraperitoneally any supposed growth-containing extract. In the case of impotent solutions, no significant growth results; but with potent solutions sooner or later an outspoken response is met. We are in this way forced to observe animals in the preexperimental period merely for three weeks and in the experimental period for three weeks. Hundreds of test creatures can be stored and when the time comes easily observed and studied in this simple way.

The production of gigantism has not been limited to the rat. It has not been difficult to produce it in the dog, in which, however, knowledge of the stature to be expected in a pure genetically known strain must be insisted on. In such a strain of pure bred dachshunds, in which, moreover there were litter-mate brothers and sisters, we have in five months produced monstrous animals;[12] they are not only much greater in size and weight than their controls, but they already show peculiarities which one expects to continue when epiphyseal closure determines the cessation of growth of the long bones. I refer to specific widening changes in the skull and to overgrowth of the skin shown in remarkable ringlike folds about the legs and in the head and neck, which almost close the eyes and produce laplike appendages to the cheeks or jaws. The American anatomist Stockard [13] prophetically assigned these skin changes seen, for instance, in the Saint Bernard but not in the Great Dane, to acromegaly, though at the time of his statement last spring no one had yet produced them. Three years ago, Putnam, Benedict and Teel [14] of Cushing's laboratory reported acromegalic changes in an English bulldog treated for over a year, but in this form they had unfortunately chosen a skull type already distorted by chondrodystrophy and in which, therefore, their end-result presented the effects of two disorders. The changes provoked in the face and long thin head of the shepherd by administering the growth hormone, whereby a grotesque shift to a caricatured bloodhound type has been produced, enable me, I believe, to state that for the first time specific changes have been produced by administering a specific agent to a form in which these changes never normally occur.

The question will be asked, To what degree of purity has the growth hormone been brought? It is easy to produce a white hygroscopic powder stable for months at room temperature in dry, air-exhausted chambers and capable of promoting maximal growth in adult female rats in doses of considerably less than 0.5 mg. daily. The powders have almost 15 per cent of nitrogen all in the form of protein or a protein-like body, and it is difficult to break them down further without losing efficacy. It appears that just as they are proving helpful in the isolation of enzymes, selective adsorption methods will be of great importance here.

THE GONADOTROPIC AND LACTOGENIC HORMONES

Most impressive, perhaps, of the changes caused by removal of the pituitary is the failure of development of the genital system in hypophysectomized youths or infants; indeed, the regression of the system in adults, whether in male or female. The testes shrink to vestigial structures in which the atrophic tubules, while never free from spermatogonia, no longer contain the four cell layers of epithelium, the accessory organs (prostate, seminal vesicles, Cowper's glands, and so on) are minute; in the female, similar recession of the uterus, tubes and ovaries ensues, but microscopic examination of the ovaries shows fairly abundant primordial ova and young follicles, overtaken, however, by atresia before any considerable enlargement has taken place.

While, then, clearly in the female, and also in the male, it is impossible to say that all germ cells have disappeared, and while, as I shall presently recount, germ cell production can be reinvoked in such animals by the conveyal to them of the "sex" hormone of the anterior lobe, the growth and maturation of germ cells is absolutely in abeyance and furthermore that other activity of the gonads—both male and female—their endocrine as well as gametogenic activity, is suspended. I refer to the internal secretions — from whatever gonadal tissue they spring—which are responsible for the production of the male and female true sex hormones and thus for the secondary sexual characters and characteristics. These animals show no more structural evidences of their sexual dimorphism than were present at the time of the operation and never manifest sex interest or desire.

Just as the antithesis of dwarfism can then be produced by the gigantism of hyperpituitarism, so also a similar antithesis exists as regards the sex hormones in the anterior hypophysis; for here also the sexual infantilism seen after ablation of the hypophysis can be contrasted with a stimulation of the organs of sex by conveying hypophyseal tissue or hormones to animals be they infantile or adult.

11. Evans, H. M., and Long, J. A.: The Effect of Anterior Lobe Administered Intraperitoneally upon Growth, Maturity, and Estrous Cycles of the Rat, Anat. Rec. **21:** 62-63, 1921. Evans, H. M., and Simpson, Miriam E.: Hormones of the Anterior Hypophysis, Am. J. Physiol. **98:** 511-546 (Oct.) 1931.

12. Evans, H. M.; Meyer, Karl; Simpson, Miriam E., and others: Growth and Gonad-Stimulating Hormones of the Anterior Hypophysis, Memoirs University of California, **11,** 1933, to be published.

13. Stockard, C. R.: The Physical Basis of Personality, New York, W. W. Norton & Co., 1931.

14. Putnam, T. J.; Benedict, E. B., and Teel, H. M.: Studies in Acromegaly: Experimental Canine Acromegaly Produced by Injection of Anterior Lobe Pituitary Extract, Arch. Surg. **18:** 1708 (April) 1929.

The circumstances that had led up to the detection of the sex hormone of the hypophysis are interesting in the extreme. In the spring of 1926, Zondek and Aschheim [15] of Berlin, seeking to influence the immature genital system in rodents (rats and mice) by various endocrine products and implants of endocrine tissues, happened to introduce bits of anterior hypophyseal tissue under the skin, to find the complete establishment of sexual maturity in these infants in from three to five days. In the same year and without knowledge of the Berlin experiments, which were only mentioned, indeed, in the briefest possible way in a note in the *Klinische Wochenschrift*, Smith,[16] of our laboratory, made the same discovery. Though there is evidence of corresponding stimulation of the youthful male gonads, it is the ovary which gives a speedily ascertained and unassailable picture of this effect, for large follicles and, above all, corpora lutea appear there for the first time.

Just as it is possible to extract the growth hormone from the hypophysis, so also we can now extract the gonad-stimulating hormone from hypophyseal tissue. Another and more convenient source of this hormone, however, was thought to have been discovered by Aschheim and Zondek,[17] and the circumstances of its discovery are dramatic. During pregnancy, for reasons quite unknown to us, the estrous hormone, or folliculin, is produced by the body in great quantity—at a time, indeed, when, according to our present very limited ideas, physiologic demands for it must be nonexistent. It was encountered by Loewe,[18] Laqueur, Zondek and others in great quantities in the full-term placenta and finally also in very considerable quantities in the blood and in the urine of pregnant women. It has been known for many years that the hypophysis is strangely enlarged in pregnancy, though the cause for that enlargement has been obscure. What more natural thing than to search not only for the ovarian but for the hypophyseal sex hormone in the fluids and tissues at the time of pregnancy? It also occurs in great abundance at this time in both the placenta and the urine and, in contradistinction to the ovarian hormone, occurs so early in pregnancy as to constitute the means of recognizing conception as soon as the first missed period has occurred, twenty-one days from coitus, a diagnostic possibility not hitherto possessed at so early a date. A unique advantage has accrued through the occurrence of this hormone (prolan) in the urine, in which, normally, much contaminating protein is absent. The ovarian hormone admixed with it can also be practically all withdrawn by virtue of its greater solubility in organic solvents (such as ether). By devices of this sort, over three years ago, my associates and I easily obtained colorless solutions of this urinary hormone, protein free and almost nitrogen free, which could be reduced in vacuo to a white powder and stored at low temperatures, to be redissolved later. Our tests of its efficacy tally with those of Wiesner. In the purest form in which it is prepared by routine in our laboratory, it can produce effects in young rodents in a total dose of 2 mg. Two claims of crystallization of this substance have recently been made. This is not the sex hormone of the anterior hypophysis. Our capacity to distinguish this particular substance, also a hormone—prolan—from the true sex hormone of the hypophysis rests on clear evidence, presently to be detailed, of a characteristic difference in the biologic effects worked by prolan and by the true anterior hypophyseal sex hormone.

No questions exceed in interest those relating to the origin and true nature of prolan. First as regards its site of origin, Philipp [19] and others abroad and Collip in this country have championed the view that involves its production by the placenta. The cases presented by genital carcinoma and especially by chorio-epithelioma, whether in male or in female, cannot well be considered as decisive for either view. On the one hand, this tissue could itself elaborate prolan just as do the young normal chorionic villi (if they do), for in most cases implants of the actual tissue in question show it housing lively amounts of prolan. On the other hand, these tissues may really only store the hormone which they stimulate the hypophysis to overproduce. Yet, recently, peculiar instances of the class of cases in which prolan is ordinarily always abundant have been found with prolan practically absent and they have been cleverly drawn into the support of the view of the placental origin of prolan. I refer to cases of hydatidiform mole and last month's report of a remarkable instance of ovarian pregnancy with a living fetus, in both of which cases an exceedingly thick boundary zone (*durchdringungszone*) — a massive fibrin layer — was interposed between fetal and maternal tissues — a zone conceivably preventing (as Robert Meyer first suggested) the diffusion maternalward of prolan, shown by implants to be present in those membranes. The adherents of the view of the fetal origin of prolan also point out that in most cases the death but retention of the fetus involves the prompt cessation of the Aschheim-Zondek reaction in the urine. Nor have these investigators failed to turn their attention to the hypophysis itself. They remind us that whereas prolan is abundant in the blood and urine shortly after the first missed period, characteristic changes in the hypophysis itself, above all the appearance of the so-called pregnancy cells, are not found before the end of the second month, or in primiparas even later. Finally, they point to the fact that the human hypophysis in pregnancy is even devoid of the hormone, as determined by the ineffectiveness of implants.

Now I should like to call attention to recent experiments and developments which are crucial in my estimation for the contention of a hypophyseal origin of prolan; these relate to its prompt appearance in the blood and urine of males or females after complete surgical ablation of the gonads. It is true perhaps that absolute rigor of proof of hypophyseal origin here will demand simultaneous hypophysectomy with gonadectomies, and we are involved in such a research program.

Now, as regards the nature, chemical and biologic, of prolan, the hypophysis-like substance occurring in the urine of pregnant women, our little group of workers perhaps deserves the distinction of having first shown that prolan, while gonadotropic, is a different and less effective substance than the true gonadotropic hormone as found in the hypophysis itself. Let me

15. Zondek, Bernhard: Ueber die Funktion des Ovariums, Deutsche med. Wchnschr. **52**: 343 (Feb. 19) 1926.

16. Smith, P. E.: Hastening Development of Female Genital System by Daily Homoplastic Pituitary Transplants, Proc. Soc. Exper. Biol. & Med. **24**: 131 (Nov.) 1926.

17. Aschheim, Selmar, and Zondek, Bernhard: Hypophysenvorderlappenhormon und Ovarialhormon im Harn von Schwangeren, Klin. Wchnschr. **6**: 1321 (July 9) 1927.

18. Loewe, S.: Ueber weibliche Sexualhormone: II. Nachweis brunsterzeugender Stoffe im weiblichen Blute, Klin. Wchnschr. **4**: 1407, 1925.

19. Philipp, E.: Die Bildungsstätte des "Hypophysenvorderlappenhormons" in der Gravidität, Zentralbl. f. Gynak. **54**: 1858 (July 26) 1930.

enumerate the differences in biologic action which have now been made out with regard to prolan in contrast to the true gonadotropic hormone of the hypophysis: 1. We [20] early discovered that there is a sharp limit to the effects which may be secured in 100 hours by administering any amount of prolan, no matter how frequent the interval between doses given young normal immature animals (rats), whereas increasing amounts of the true gonadotropic hormone from anterior lobe tissue always give increasing effects on the genital system of the young recipients. In this way it can easily be shown that the substance in the blood stream and placenta as well as in the urine of pregnant women is prolan unadmixed with the true hypophyseal gonadotropic hormone. 2. Prolan is ineffective in increasing the development or weight of the testes in young birds (chicks or pigeons).[21] 3. Prolan will apparently not cause "reddening" of the sexual skin in Macacus and related forms, whereas hypophyseal hormone accomplishes this readily.[22] 4. Finally, prolan is strikingly ineffective in hypophysectomized animals. We were able to show that, even with massive doses, chronically administered, prolan may be ineffective in stirring the sexual system of hypophysectomized animals and is always less effective than in normal ones.[23] This experience led us to the conviction that the hypophysis itself must aid, in some obscure way, the action of prolan, and it led us to seek for that hypothetic substance in hypophyseal extracts. We found it abundantly present in the simple alkaline aqueous extracts which we were accustomed to making for securing the growth hormone, and for a time it seemed possible to us that the growth hormone itself might be transformed into the gonad-stimulating hormone. Certain only was the fact that these hypophyseal extracts conferred on prolan a strangely increased potency—a potency now comparable to or exceeding the best that could be secured in extracts of the hypophysis containing the gonadotropic hormone itself. These facts, which we designated the activation of prolan, were quickly confirmed by other investigators (e. g., Leonard [24]) and it was also shown that extracts of the glands rich in the gonadotropic hormone itself and free of the growth hormone could equally well be still further activated in their gonadotropic properties by the addition of prolan. The research of the last few months at the Rockefeller Institute, where I am a guest, has enabled us to show that this hypophyseal constituent is, however, not the well known gonadotropic hormone of the anterior lobe but is a body having different chemical and biologic characteristics.[25] This body, the so-called activator of prolan when it is added to the latter, confers a stimulus to the gonads in excess of anything we have hitherto observed, save that produced by the highly concentrated gonadotropic hormone of the pregnant mare's blood stream. The hypophyseal substance has made it possible to rival easily or to exceed the maximal effects secured by the equine hormone and will probably prove the supreme agent for gonadotropic therapy in the future. By means of it, the ovaries of infantile rats are increased from 15 to 300 mg. in weight in ninety-six hours and approach in size the dimensions of the kidneys.

Besides its therapeutic importance, an equally important consequence of the detection of the new hypophyseal substance is the fact that it furnishes an important new tool with which to recognize the presence of prolan-like bodies in the blood and urine of animals, both in pregnant and in various nonpregnant conditions. And we cherish the hope—I speak of the studies of the last few weeks—that by means of this new weapon we can clear up the hitherto puzzling enigma of the presence of prolan-like bodies in primates but their absence in all other animal forms.

Highly interesting are the recent clear evidences of a direct relation of mammary secretion to hypophyseal influence—a field opened by the studies of Corner [26] and to which Riddle [27] has brought evidence which will soon, if it does not indeed now, convince critical workers of the existence of another hypophyseal hormone—the lactogenic. When it was discovered a few years ago that the condition of pseudopregnancy involved the elaboration of secreting alveoli in the mammary tree, it was settled that these things owe nothing to the presence and possible internal secretion of the fetus, extracts of which in Sir Ernest Starling's [28] hands had seemed to evoke the same response. The question was now only which one of the endocrines was concerned in mammary development and from the work of the Bouin school in Strasbourg it seemed likely that this could be shown to be a direct effect of the hormone of the corpus luteum. It was fortunate, then, that the discoverer of the lutean hormone, Corner, should have made it clear that this substance alone is powerless to achieve these effects. The story is only complicated by the fact that a structurally perfect mammary tree must be built up before the lactogenic hormone can provoke, as it does, true milk secretion.

RESPIRATORY METABOLISM AND THE THYROTROPIC HORMONE

The important clinical studies of Loewe, of Zondek and of Brütt and Knipping [29] showed strikingly low basal metabolic rates in cases in which the diagnosis of cachexia hypophysiopriva was confirmed by the finding of definite pituitary destruction or impairment at the autopsy table. Furthermore, a marked lowering of the specific dynamic action of food has been reported in pituitary disease, especially in the Fröhlich adiposity (Rolly, Plaut, Bernhardt). Yet it is evident that, for conviction here, all studies should be carried out on animals in which purposeful isolated injury of the hypophysis without concomitant brain injury has been made. It was therefore only when nonadipose dwarfs

20. Evans, H. M., and Simpson, Miriam E.: A Comparison of the Ovarian Changes Produced in Immature Animals by Implants of Hypophyseal Tissue and Hormone from the Urine of Pregnant Women, Am. J. Physiol. **89:** 371-374 (July) 1929. Evans, H. M.; Meyer, Karl, and Simpson, Miriam E.: Relation of Prolan to the Anterior Hypophyseal Hormones, Proc. Soc. Exper. Biol. & Med. **28:** 845-847 (May) 1931; Am. J. Physiol. **100:** 140-156 (March) 1932.

21. Riddle, Oscar, and Polhemus, Irene: Studies on the Physiology of Reproduction in Birds: XXXI. Effects of Anterior Pituitary Hormone on Gonads and Other Organ Weights in the Pigeon, Am. J. Physiol. **98:** 121 (Aug.) 1931.

22. Engle, E. T.: Differences in Response of Female Macacus Monkey to Extracts of Anterior Pituitary and of Human Pregnancy Urine, Proc. Soc. Exper. Biol. & Med. **30:** 530, 1933.

23. (*a*) Reichert, F. L.; Pencharz, R. I.; Simpson, Miriam E.; Meyer, Karl, and Evans, H. M.: Ineffectiveness of Prolan in Hypophysectomized Animals, Proc. Soc. Exper. Biol. & Med. **28:** 843 (May) 1931; (*b*) Relative Ineffectiveness of Prolan in Hypophysectomized Animals, Am. J. Physiol., **100:** 157 (March) 1932.

24. Leonard, S. L.: Increased Stimulation of Immature Rat Ovaries by Combined Injections of Prolan and Hypophyseal Sex Hormones, Proc. Exp. Biol. Med. **30:** 403, 1932.

25. Evans, Herbert M., Miriam E. Simpson and Paul R. Austin. The Hypophyseal Substance Giving Increased Gonadotropic Effects When Combined with Prolan, J. Exper. Med. **57:** 6, 897, 1933.

26. Corner, G. W.: The Hormonal Control of Lactation, Am. Jour. Physiol. **95:** 43-55 (Oct.) 1930.

27. Riddle, Oscar; Bates, Robert W., and Dykshorn, Simon W.: A New Hormone of the Anterior Pituitary, Proc. Soc. Exper. Biol. & Med. **21:** 1211 (June) 1932.

28. Lane-Claypon, Janet, E., and Starling, E. H.: An Experimental Inquiry into the Factors Which Determine the Growth and Activity of the Mammary Glands, Proc. Roy Soc., B **77:** 55, 1906.

29. Brütt, H., and Knipping, H. W.: Die Gasstoffwechseluntersuchung in der Chirurgischen Klinik, Ergebn. d. Chir. u. Orthop. **21:** 1-67, 1928.

from hypophysectomy were available that satisfactory studies could be made, and the work of Foster and Smith [30] represents the only critically acceptable research here. They have shown a very marked lowering of the basal metabolic rate. When the posterior lobe alone was removed, no such decrease was observed.

Highly interesting were their conclusions regarding specific dynamic action. Hypophysectomized rats fail entirely to show specific dynamic action. The authors correlate this with the invariable injury to thyroid function caused by absence of the hypophysis in view of the discovery of Baumann and Hunt [31] (which they confirm) that thyroidectomy obliterates the specific dynamic action. Now the implantation of anterior lobe alone, or of posterior lobe, did not repair this failure to respond to glycocoll but implants of the whole gland did so. This is the only instance known to me of the synergism of the anterior and posterior pituitary lobes so often asserted but in no other respect established.[32]

Four years ago, these investigators showed a remarkably increased sensitivity to thyroid on the part of hypophysectomized rats, and it is of interest that the effect of thyroid was almost twice as great in hypophysectomized animals as in thyroidectomized ones. In thyroidectomized animals the increase in basal heat production caused by thyroid was about four times that in normal animals given thyroid, but in hypophysectomized animals it was about eight times greater. An explanation of this has not as yet been furnished.

The thyroid epithelium in the hypophysectomized rat becomes reduced to the squamous type and the nuclei are flattened; the vesicles contain approximately the normal amount of colloid, and possibly for this reason the reduction in weight of the glands is not so pronounced as it would otherwise be.

Subnormality of thyroid function is always evident after hypophysectomy in the very low basal metabolic rate, but it is highly interesting that complete ablation of the thyroids cannot cause so low a basal metabolism as supervenes after hypophysectomy, so that other factors contribute to produce the great lowering and the injured adrenals may contribute to it, since Ant, Forman and Bright (1922) and Zwemer (1929) have shown a fall in metabolism after suprarenalectomy. Anterior hypophyseal extracts quickly restore the thyroid, as determined by complete change of squamous to cubical or cylindric epithelium, which may come to look like that of exophthalmic goiter, and by rapid rise of the basal metabolic rate. The hypophyseal hormone accomplishing these results, the thyreotropic hormone, may be clearly separated from the growth hormone, for unlike the latter it is not completely precipitated from aqueous extracts of the gland by trichloracetic acid.

Now just as growth and sex hormones can be tested by their action on normal young or old individuals, so also the thyreotropic hormone can be adequately tested. In fact, convincing evidence of the existence of this hormone was first furnished by Loeb in this country and Aron [33] of Strasbourg in the rapid change it provoked in the epithelium of the thyroid vesicles of young guinea-pigs. Schockaert showed that ducks are particularly sensitive to its administration, and by it he produced for the first time experimental exophthalmos, an achievement recently similarly secured in the mammal by Anderson [34] of Collip's laboratory, and only yesterday by Marine [35] of New York.

Entirely enigmatic at present is the singular rather rapid wearing out of thyrotropic effects with continuous administration of the hormone.

ADIPOSITY

An important contribution was made by Camus and Roussy [36] of Paris in 1921, when they showed that the adiposities with which pituitary ablation had been so often accompanied could be produced by slight injuries to the superficial gray of the tuber cinereum near the hypophysis but with the hypophysis itself perfectly intact. This story was confirmed by Bailey and Bremer, by Smith and by others. All recent hypophysectomies have shown convincingly that without brain injury one can regularly secure perfect dwarfism from hypophysectomy without traces of adiposity. The conception of a direct relation of the hypophysis to fat metabolism has hence lost caste.

In 1931, Anselmino and Hoffmann [37] reported the occurrence of a substance in the anterior lobe which, when injected into rats, rabbits, dogs and human beings, causes a rise of the acetone bodies in the blood. This substance is in its physical and chemical properties similar to the other known anterior lobe hormones. But it is separable from the growth, gonadotropic, thyrotropic and lactogenic hormones by means of ultrafiltration. So this principle is not identical with any other known principle. It occurs in the blood stream and has been isolated from the urine by Casimir Funk.

It has been found by Anselmino and Hoffmann that under physiologic conditions the substance appears in the blood stream only when fat is burned. After a fatty meal or in hunger, when the acetone bodies in the blood rise, the substance is found in the blood and can be assayed with the rat test. From various facts the authors conclude that this substance has a regulatory function in the fat metabolism. These facts are: primarily the physiologic occurrence of the substance in the blood only when fat is burned, not under other conditions; secondly, the well known connection of acetone bodies with fat combustion or transformation; and, finally, the old clinical observation of a connection of the anterior lobe with certain forms of obesity, just recently again shown by Cushing [3] in his new anterior lobe syndrome, the basophilism. It is this group of facts, at any rate, which have induced these authors to call this substance, not yet completely characterized, the fat metabolism hormone of the anterior lobe.

30. Foster, G. L., and Smith, P. E.: Hypophysectomy and Replacement Therapy in Relation to Basal Metabolism and Specific Dynamic Action in the Rat, J. A. M. A. **87:** 2151-2153 (Dec. 25) 1926.

31. Baumann, E. J., and Hunt, L.: On the Relation of Thyroid Secretion to Specific Dynamic Action, J. Biol. Chem. **64:** 709-726 (July) 1925.

32. The study of the specific dynamic effect in cerebral adiposities experimentally produced would be particularly important. Brutt and Knipping report remarkable restitutions of the effect in cases of Fröhlich disease by giving certain anterior hypophyseal preparations.

33. Aron, M.: Action de la prehypophyse sur la thyroide chez le cobaye, Compt. rend. Soc. de biol. **102:** 682-684 (Nov. 29) 1929.

34. Reichert, Pencharz, Simpson and Evans.[23a] Anderson, Evelyn M.: The Production of Hyperplasia of the Thyroid with Hyperthyroidism in the Albino Rat—A Preliminary Report, Canad. M. A. J. **28:** 23 (Jan.) 1933. Anderson, Evelyn M., and Collip, J. B.: Thyreotropic Hormone of Anterior Pituitary, Proc. Soc. Exper. Biol. & Med. **30:** 680 (Feb.) 1933.

35. Marine, David, and Rosen, S. H.: Exophthalmos in Thyroidectomized Guinea-Pigs by Thyrotropic Substance of Anterior Pituitary, and the Mechanism Involved, Proc. Soc. Exper. Biol. & Med. **30:** 901-903, 1933.

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37. Anselmino, K. J., and Hoffmann, F.: Das Fettstoffwechselhormon des Hypophysenvorderlappens: I. Nachweis, Darstellung und Eigenschaften des Hormons, Klin. Wchnschr. **10:** 2380-2383, 1931. Hoffmann, F., and Anselmino, K. J.: Das Fettstoffwechselhormon des Hypophysenvorderlappens: II. Stoffwechselwirkungen und Regulationen des Hormons, ibid. **10:** 2383-2386, 1931.

CARBOHYDRATE METABOLISM AND A DIABETOGENIC HORMONE

That the hypophysis is related in some way to carbohydrate metabolism did not escape either experimenter or clinician and when, in the pioneer ablations of Cushing, adipose dwarfs were created, he was not surprised to detect in them an increased tolerance for carbohydrates, for this stood in his mind in proper contrast to the association of diabetes with acromegaly. However, the whole question of the relation of carbohydrate metabolism to the anterior lobe waited for its secure establishment from the series of researches by Houssay and his colleagues in Buenos Aires, which was ushered in by the Houssay-Magenta [38] discovery of the increased sensitivity to insulin shown by hypophysectomized dogs, a fact which has been abundantly confirmed by Geiling [39] of Baltimore and by Kobasashi of Tokyo. But the most remarkable disclosure by the Houssay school is perhaps that relating to hypophysectomy as strangely ameliorating diabetes produced by ablation of the pancreas. The complicity of the anterior lobe here seems clearly established by their demonstration that implants of it (not of the pars posterior or intermedia) immediately bring on hyperglycemia in such animals. The detection of just which of the anterior hypophyseal hormones is responsible for the pancreas-pituitary relation would seem possible by study of the potency of various extracts in reinvoking diabetes after the double operation (hypophysectomy and pancreatectomy) or of the capacty of such extracts to control the toxicity of insulin in hypophysectomized animals. Such preliminary work as has been done in the latter field is as yet unsatisfactory.

The Houssay school has shown that morphine and epinephrine hyperglycemias are less in hypophysectomized animals. They have in fact shown that hypophysectomized animals are peculiarly susceptible to hypoglycemias from fasting alone, hypoglycemias that may prove fatal. It is strange that for so long a time these facts were overlooked. Pencharz with us has found the striking picture of hypoglycemic collapse in hypophysectomized guinea-pigs on coming to the laboratory in the morning and has been able to provoke a Lazarus-like resurrection with dextrose by stomach tube or needle.

Though many physicians may take sharp issue here, modern experimental work, as has already been explained, seems to challenge the complicity of the hypophysis itself in conditions that have long been called hypophyseal adiposity. On the one hand, adiposity does not result from discrete injury to the hypophysis or its removal and, on the other hand, we have seen the invariable production of adiposity by slight injury to brain areas adjacent to the gland. It is highly important, then, to inquire as to whether contiguous brain injury in hypophysectomies, be it ever so slight, has not actually been the true cause of the upset in carbohydrate metabolism. Possible nervous origin for such an upset has been known, of course, from the time of Claude Bernard's sugar puncture in 1858, and we know the modern studies of hypothalamic metabolic centers. Nor can sugar upset with pituitary tumors bring any decision here, for a possible encroachment of the neoplasm on these centers is obvious. It would seem of maximal importance, therefore, for us to be able to say that we have provoked true diabetes in normal dogs, with nervous system of course intact, by the administration of alkaline extracts of the hypophysis.[40] This experience would seem to possess crucial value in establishing an hypophyseal causation of diabetes by humeral channels, that is, by an overproduction of one of its hormones, diabetogenic in its effect. The method of action of this hormone, its possible repression of the functioning of the Langerhans tissue, is as yet entirely unknown; nor has separation of the diabetogenic hormone from the growth and thyroid or epinephrine-effecting hormones been accomplished. I can only state that our work shows that the gonadotropic hormone is clearly not involved.

AN ADRENALOTROPIC HORMONE

Perhaps the most deeply interesting changes as a result of ablation of the pituitary are those provoked in the adrenal; while the body weight in these dwarfs is much below that of their normal litter mate controls, an even more striking atrophy overtakes the adrenals and this reduction is due almost solely to the atrophy of the cortex of the suprarenal, which becomes little more than a shell.

On account of the well known essentiality of the adrenal cortex for life, it was only natural that we should inquire as to whether the ultimate strange sickness and death of hypophysectomized animals was not due to cessation of adrenal cortical function. Hence it was that we administered Swingle's adrenal cortical hormone to hypophysectomized animals that had begun to decline many months after the operation. This vitally important adrenal substance did not modify their decline, a decline dramatically changed to improvement the moment we gave them aqueous alkaline extracts of the anterior lobe. The sudden resuscitation which one can invariably produce in this way is attended not only with abrupt general body growth but regrowth toward normality of the adrenal cortex. Adrenal cortical tissue therefore needs for its normality some constituent of the anterior hypophysis. Since our prolonged series of experiments has shown that replacement of the adrenal cortex in hypophysectomized animals is never provoked even by concentrated dosage with the gonadotropic hormone [41] and since it is invariably produced by certain extracts of the growth hormone but not by other highly purified ones, it would appear inevitable for us to recognize the existence of an adrenalotropic hormone, the properties of which as distinguished from the thyrotropic, lactogenic and other possible hormones will emerge, I trust, from the research of the three or four laboratories engaged in this study in the course of the next few months. Concentrated preparations of the adrenalotropic hormone should make it possible to provoke more readily the hypertrophy of accessory adrenal tissue after complete excision of these glands. Nor is it altogether out of the question for us to hope that the hypertrophied fragments will more readily undertake normal functioning and that Addison's disease may thus be attacked not by replacement therapy, as is at present the case and is the case with diabetes, but by a new type of therapeutic procedure, one that will stir the defective tissue itself to resume its normal task.

38. Houssay, B. A., and Magenta, M. A.: Sensibilidad en los perros hipofisoprivos a la insulina, Rev. Asoc. méd. argent. **37:** 236, 1924.

39. Geiling, E. M. K.; Campbell, D., and Ishikawa, Y.: The Effect of Insulin on Hypophysectomized Dogs, J. Pharmacol. & Exper. Therap. **31:** 247 (July) 1927.

40. Evans, H. M.; Meyer, Karl; Simpson, Miriam E., and Reichert, F. L.: Disturbance of Carbohydrate Metabolism in Normal Dogs Injected with the Hypophyseal Growth Hormone, Proc. Soc. Exper. Biol. & Med. **29:** 857-858 (April) 1932.

41. Evans, H. M.; Meyer, Karl; Simpson, Miriam E., and others: Growth and Gonad Stimulating Hormones of the Anterior Hypophysis, Memoirs University of California **11,** to be published.

CONCLUSION

I realize that the bewildered reader of my exposition will desire to be assured of the justification for the recognition of such a perplexing number of apparently discrete internal secretory substances or hormones furnished by a bit of tissue in which at most but three or four distinct cell types have been recognized by modern histologic methods. Pending the time the biologic chemist develops methods for the further concentration and, above all, for the complete isolation of these substances, preferably in crystalline purity, one will desire to know briefly whether or not biologic workers have perfected a methodology adequate for the identification of truly discrete effects. I can only state that fortunately at the present time sufficiently sensitive test objects would appear to have been found for each of the five substances—the growth, gonadotropic, thyrotropic, lactogenic and diabetogenic hormones—and that in many cases, but not yet in all, we have assurances of relative, even if not absolute, freedom from any but a single effect.

One may also challenge the assumption that these various isolated and clear-cut effects are all the direct result each of a peculiar hormone substance acting on a particular end organ. Might not some of them be secondary, that is, indirect, effects of two or three fundamental hormones like those which govern growth and sex?

I am of the opinion that this vitally important criterion will also quickly be met. The effect of the growth hormone is, of course, general. But the effects of the gonadotropic and thyrotropic hormones have been recently shown to be exercised directly on their recipient tissues, for these secretions cause their characteristic effects when they are placed in contact with gonadal or thyroid tissue fragments in the Warburg chamber.

Fortunately the biologic chemist has now joined forces with the biologist or, in the example of Professor Collip, has taken charge of this whole affair, and one will sympathize with the impulse that leads me to the prediction that through the use of some of the most modern tools of biologic chemistry, those for instance that have been so useful in vitamin and, above all, in enzyme research, ultimate identification of these substances will not be long delayed.

Twelve years ago, Cushing [42] rightly stigmatized behavior which if not outright charlatanism condoned extravagant conceptions of our control of basic phenomena in the body and said, to present an extreme example, "The Lewis Carroll of today would have Alice nibble from a pituitary mushroom in her left hand and a lutein one in her right and presto! she is any height desired."

I have presented you today with giants possessing infantile sexual systems, or young creatures still suckling their mother and yet themselves sexually mature; moreover, with the experimental counterpart of that South American male savage seen by Alexander von Humboldt to be suckling his child. These mysteries, therefore, are at hand. We are not living in a dream but have worked with exactitude and need not cry out, then, for deliverance from the dream, "Alice, where art thou? for it must be you, surely in this queerest of worlds, who hath taken us by the hand."

42. Cushing, Harvey: Disorders of the Pituitary Gland, Retrospective and Prophetic, J. A. M. A. **76**: 1721 (June 18) 1921.

ACUTE LEUKEMIA IN CHILDREN

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Leukemia may be defined as a systemic disease of unknown etiology in which the normal mechanism for the production of formed blood elements is permanently damaged, with the appearance in the circulating blood of abnormal types of leukocytes. Three common forms of the disease are readily recognized, each of which is a clinical entity with a relatively characteristic blood picture: (1) Chronic myelogenous leukemia, or chronic myeloid leukemia, in which large numbers of granular leukocytes and myelocytes occur in the blood. This is the common form of the disease seen in adults, but is relatively rare in children. It is characterized by a great enlargement of the spleen, muscular weakness and a duration of from one to several years. (2) Chronic lymphoid leukemia, a less frequent type found in older persons and clinically similar to the chronic myelogenous form, but characterized by the presence of very numerous small nongranular mononuclear leukocytes resembling normal lymphocytes. This form of the disease is unknown in children. (3) Acute leukemia, or acute lymphoid leukemia, the common or usual form of the disease seen in children. It occurs also in adults, but is less common than the chronic myeloid type. The characteristic blood changes consist in anemia, thrombocytopenia and a relatively high percentage of nongranular abnormal mononuclear cells. The actual number of leukocytes varies from a few thousand to several hundred thousand, and the disease is always fatal in from a few weeks to a few months. Practically all cases of leukemia are easily classified in one of the foregoing groups, although rarely in an atypical case this is difficult.

TABLE 1.—*Age and Sex of Fifty Children with Acute Leukemia*

Age, Years	Boys		Girls	
0 to 1	2		1	
1 to 2	0		0	
2 to 3	3	11	3	9
3 to 4	6		1	
4 to 5	0		4	
5 to 6	3		3	
6 to 7	2		0	
7 to 8	2	10	1	6
8 to 9	0		2	
9 to 10	3		0	
10 to 11	4		1	
11 to 12	2		0	
12 to 13	2	11	2	3
13 to 14	2		0	
14 to 15	1		0	

In this paper is presented an analysis of the clinical manifestations in fifty cases of acute leukemia in children which have been observed in the last fifteen years at the St. Louis Children's Hospital. During this period three cases of typical chronic myelogenous leukemia have also occurred in children, and two other instances of acute blood dyscrasia which were difficult to classify from the blood picture. Two of the three children with chronic leukemia were boys, 8 and 12 years of age, and one a girl of 9 years. The blood picture and clinical symptoms in all the cases were typical of the disease as seen in adults. One child is still under observation ten

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months after the apparent onset, while the other two lived fourteen months and two years, respectively.

Certain general characteristics of the group of fifty children with acute leukemia relating to the age, sex and duration of the disease deserve comment. If the three five year periods in table 1 are compared, it will be seen that there is little apparent difference in the age incidence in boys. A very striking decrease, however,

TABLE 2.—*Total Duration of Acute Leukemia in Fifty Children*

Duration	Number of Cases		Per Cent
Birth to 1 month	3		
1 to 2 months	7	27	54
2 to 3 months	17		
3 to 4 months	7		
4 to 5 months	6	17	34
5 to 6 months	4		
6 to 7 months	1		
7 to 8 months	1	6	12
8 to 9 months	4		

occurs in the incidence of the disease in older girls, since twelve of the eighteen girls with the disease were in the first six years of life and only six were between the ages of 6 and 15 years. In all published reports of acute leukemia, including cases in both children and adults, males have regularly predominated over females in a proportion of 2:1, a figure closely approximated in this series of children (thirty-two boys and eighteen girls), but it is of some interest that the disproportion in sex incidence does not apply to younger children.

The three cases occurring in infancy may be briefly mentioned. In one the disease was congenital, the first symptoms being noted on the fourth day of life; the baby died on the twenty-third day. The onset in the second case was at the age of 10 days, and the baby lived three months. In the third case, the apparent onset was in the third month, and death occurred three months later. All the cases were typical clinically and had characteristic blood pictures.

The total duration of the disease was somewhat difficult to determine since the onset is usually insidious; however, the duration has been tabulated (table 2) as accurately as possible from the first onset of symptoms. More than half the cases were fatal in three months or less. About one third of the patients lived between three and six months, while only six, or one-eighth, lived from six to nine months. As there has been a tendency to speak of the cases of children with agranulocytic leukemia who live longer than a few months as chronic lymphatic leukemia, it is of interest to mention briefly the type of the disease in the six children who lived longer than six months. One was under observation for almost three months with a mediastinal leukemic tumor, but without leukemic blood changes, and lived three months after the leukemic picture developed in the blood. The cases of four of the remaining five children were of the leukopenic type, and there were only transient periods of moderate leukocytosis. Two of the children who were examined at necropsy showed typical leukemic infiltration of the organs. It seems preferable to limit the term chronic lymphatic leukemia to the well recognized type which occurs in adults and to consider that in a small proportion of children with acute leukemia the disease may have a moderately prolonged course.

BLOOD PICTURE

The fifty children with acute leukemia had blood pictures of the type commonly called acute lymphatic leukemia. The granular polymorphonuclear cells formed only from 1 to 15 per cent, and usually less than 10 per cent, of the leukocytes; these cells were in various stages of maturation as the *stabkern* and *jungengliche* cells of Schilling, as well as segmented cells, were always present. Myelocytes were rarely found. The remainder of the cells were mononuclear, nongranular and oxydase negative, and varied in size and in amount of protoplasm. Although these cells are often referred to as lymphocytes or lymphoblasts, there is considerable evidence that they originate in the marrow and are probably myeloblasts. The leukocyte count in the children of this group varied from 250 to 815,000 per cubic millimeter in different patients. Certain patients also had much variation at different times during the disease. For example, a reduction from 200,000 to 5,000 in three days occurred in one child, and in another a decrease from 107,000 to 11,500 four days later. Other somewhat less striking variations occurred without apparent cause. In order to illustrate the variations in the number of circulating leukocytes in this series of fifty children, the highest and the lowest counts while under observation have been tabulated.

It will be seen, for example, that in nineteen children the total count reached 100,000 or more, but in only seven did it remain constantly above that figure, and while nineteen children had counts of less than 10,000 at some time during the disease, in six the leukocytes never went above this figure. Patients with low counts, often referred to as having aleukemic leukemia or leukemia without leukocytosis, showed no clinical differences from those with leukocytosis or hyperleukocytosis, and a considerable proportion of the patients showed leukopenia at some time during the course of the disease.

In addition to the leukocyte changes, all the children had anemia and thrombocytopenia. About three fourths of them had well marked anemia when first seen. Only rarely were normoblasts present, and there appeared little tendency to erythropoiesis. Twenty-three of the forty-three children who were under observation during the later stage of the disease had red counts of less than 2,000,000, two counts being less than 1,000,000; fifteen had counts between 2,000,000 and 3,000,000, and in five the count was between 3,000,000 and 4,000,000.

One group of children of particular interest included five who were under observation for varying periods after the onset of symptoms which were probably of leukemic origin, but before any leukemic change could

TABLE 3.—*Leukocyte Counts*

	More Than 100,000	50,000 to 100,000	20,000 to 50,000	10,000 to 20,000	Less Than 10,000
Highest count	19	6	13	6	6
Lowest count	7	7	10	7	19

be detected in the blood. Four of them had mediastinal masses of sufficient size to give dyspneic symptoms one month, six weeks, two months and three months, respectively, before the development of leukemic blood changes, while the fifth child had fever and very severe rheumatoid pains for six weeks previously. During this period none of the children had anemia or thrombocytopenia.

The characteristics of the blood picture in acute leukemia, therefore, were: (1) agranulocytosis with the presence of immature polymorphonuclear cells, (2)

anemia of the aplastic type, (3) thrombocytopenia and (4) the appearance of varying numbers of abnormal nongranular mononuclear cells.

The possible influence of preceding infection on the production of acute leukemia has interested many investigators. In only a few of the children in this series had a recent infection been noted. In thirty-seven no infection had occurred within six months preceding the leukemia; one had pertussis and bronchopneumonia five months before, one chicken-pox four months before and two scarlet fever two months previously. Of the nine who had infection within one month of the apparent onset of the disease, three had follicular tonsillitis, two infection of the upper respiratory tract, two impetigo, one measles and one diphtheria.

THE CLINICAL SYMPTOMS

The first symptom of the disease noted by the parents is of interest. This symptom consisted in pallor and asthenia in seventeen cases; enlargement of the cervical gland in nine, skin hemorrhages in seven, cough and dyspnea in five, rheumatoid pains in five, stomatitis in two, abdominal pain in two, neurologic symptoms (paralysis of the bladder and severe headache) in two and enlargement of the abdomen in one.

For purposes of description of the clinical manifestations the children have been divided into several groups on the basis of the most prominent or striking clinical phenomena of the disease, although there was, of course, some overlapping of the symptoms and signs. These groups are as follows:

1. *Asthenia.* — This familiar type included twenty-two children in whom the principal symptoms were weakness and pallor.

2. *Dyspnea.*—In this type the symptoms are due to pressure of a leukemic tumor in the anterior mediastinum. The cases of the seven children in this group have been described in detail elsewhere,[1] and it will be mentioned only that the symptoms consisted in cyanosis of the neck and face, with cough and dyspnea which tended to be paroxysmal and were often accentuated by muscular effort.

3. *Rheumatoid Pains.*—Pain in the extremities and in the joints is often a prominent symptom of acute leukemia and is not always sufficiently emphasized. A brief summary of one of the cases in this group follows:

> A 14 year old white boy, two days after having had slight fever and sore throat complained of pain in the elbows, knees and ankles, which continued and became so severe that walking was painful. On examination two weeks after the onset the boy had a fever of 40.4 C. (104.7 F.) and was apparently suffering from severe pain in the knees and head. Although he had no objective swelling of the extremities, there was general muscular tenderness on moderate pressure. Physical examination gave negative findings except for palpable small anterior and posterior cervical lymph nodes. At times he would awaken from a short sleep crying and moaning with pain in the muscles, especially in the legs. A pea-sized rheumatism-like nodule was noted at the proximal end of the right metacarpal bone, and clusters of similar nodules were found in the occipital aponeurosis. A faint systolic murmur developed at the apex, although an electrocardiogram showed a normal mechanism, and no cardiac abnormality was detected. Fever and pain persisted. There was no anemia, and the blood showed a moderate leukopenia of from 4,000 to 6,000 with a normal differential count. The child was considered to have rheumatic fever until more than three weeks after admission, when hemorrhages occurred in the skin and mucous membranes, the cervical glands became enlarged, and the leukocytes increased to 20,000 with the picture of acute leukemia. Death occurred one week later.

4. *Hemorrhages.*—Although petechial or ecchymotic hemorrhages, as well as bleeding from mucous membranes, are relatively common in acute leukemia, in certain children this hemorrhagic tendency overshadows other symptoms by its extent. The patients in this group had extensive bleeding in the skin and also from the mucous membranes (the nose, mouth, intestine or urinary tract).

TABLE 4.—*Principal Clinical Manifestations in Fifty Children with Acute Leukemia*

Clinical Type	Number	Rheumatoid Pain	Stomatitis	Deafness	Cervical Lymph Nodes		Hemorrhages		Spleen		
					Palpable	Visible	Skin	Mucous Membranes	+	++	+++
Asthenia	22	6	1	..	14	5	14	12	7	13	2
Dyspnea	7	..	..	1	3	4	5	2	1	4	2
Rheumatoid pain	6	6	1	1	4	1	4	4	2	1	3
Hemorrhages	5	1	..	..	3	1	5	4	1	2	2
Cervical adenopathy	4	..	..	..	..	4	3	3	2	1	1
Abdominal pain	2	..	..	1	..	2	2	2	1	..	1
Stomatitis	2	..	2	1	1	1	1	1	1	1	..
Neuropathic symptoms	2	..	..	..	2	..	1	..	..	1	1
Totals	50	13	4	4	27	18	35	28	15	23	12

5. *Cervical Adenopathy.* — Marked enlargement of the cervical lymph nodes was quite inconstant, but in a certain number of cases formed the most striking clinical manifestation.

6. *Abdominal Pain.*—In two instances symptoms of acute peritoneal irritation dominated the illness, with very severe abdominal pain, muscular spasm and vomiting. At necropsy, one child had a perforated appendix, the wall being very friable from extensive leukemic infiltration, while the second child had widespread subserous hemorrhages over the appendix, cecum, transverse colon and sigmoid. Both had great enlargement of the abdominal lymph nodes. Four other children suffered from somewhat less severe abdominal symptoms.

7. *Stomatitis.*—Ulcerative stomatitis associated with Vincent's fusospirillosis was relatively infrequent, being noted in only four children. In two it was quite severe, one case developing into noma of the check.

8. *Neuropathic Symptoms.* — In two patients the chief symptoms were referable to the nervous system. One was a 13 year old boy in whom, during the course of a week, signs of transverse myelitis developed, with complete flaccid paralysis of the legs and urinary and fecal incontinence. There were at this time no other signs of leukemia, and only an examination of the blood revealed the diagnosis. He died two months later. There was no necropsy, but it seemed likely that a leukemic infiltration in or pressing on the spinal cord pro-

1. Cooke, J. V.: Mediastinal Tumor in Acute Leukemia, Am. J. Dis. Child. **44**: 1153 (Dec.) 1932.

duced the symptoms. The second child, a 10 year old boy, was ill less than three weeks. He complained constantly of very severe frontal headache, pain and hyperesthesia and paresthesia of the legs. A few days before death he became lethargic and completely disoriented when aroused, although he had only slight fever and had not seemed toxic. In addition to a leukocyte count of over 500,000, he had enlargement of the spleen and the liver, a few petechiae of the skin and some small hemorrhages in the ocular fundi. The encephalitic symptoms were attributed to cerebral leukemic infiltration. Four other children had varying degrees of deafness; one became practically deaf toward the end of the disease, and the other three were only partially so.

Certain of the more common clinical manifestations tabulated in table 4 may be commented on briefly. Enlargement of the cervical lymph nodes was present to a sufficient degree to render them visible in only eighteen children; in twenty-seven others they were palpable and were considered to be slightly enlarged, and in five they were normal. The axillary and inguinal nodes were often slightly larger than normal and firm, but were never greatly increased in size. The spleen was firm and swollen in every case. In only twelve instances did it reach the umbilicus, while in fifteen the organ was felt only 1 or 2 fingerbreadths below the costal margin, and in the remaining twenty-three the size was between that in the foregoing groups. Hemorrhages were observed in forty of the fifty children and were somewhat more common in the skin (thirty-five) than in the mucous membranes (twenty-eight). While hemorrhage was apparently related to the thrombocytopenia, certain children had very low platelet counts without any visible bleeding.

Fever was present at some time in all children. In many it was only around 38 C. (100.4 F.), but almost all had periods, often toward the end of the disease, during which there was striking clinical evidence of general systemic disturbance with pyrexia. These periods were apparently not due to intercurrent infection but were attributable to the disease itself. A certain number of children suffered from intercurrent acute infections, such as tonsillitis, otitis and mastoiditis, during the course of the acute leukemia. On account of the lack of granular leukocytes in the blood, it was feared that the power of resistance in such children would be low. It was therefore surprising that several patients recovered from such infection quite satisfactorily; one lived more than a month after mastoidectomy, while another recovered from a streptococcic infection of the ear and septicemia; in this case blood cultures were positive on two occasions. Certain others, however, died of terminal pneumonia. Many seemed to succumb to the effects of the leukemia without demonstrable infection.

The effects of blood transfusion varied greatly in different children. In some definite improvement continued for a week or more after transfusion, and it could be repeated several times, while in others few effects could be noted. The tendency to continued severe hemorrhage was often counteracted temporarily by transfusion. In general, however, the transient effect and the certain eventual outcome of the disease made the use of transfusions of questionable value. They produced no change in the leukocyte picture, not even a temporary increase in granular cells. The few children with leukemia treated by roentgen irradiation did not improve, and certain of them seemed more toxic after such treatment and died in a short time. The impression gained was that irradiation is contraindicated. In only one group was such irradiation of value, viz., in children who had massive mediastinal infiltration producing compression of the trachea and vessels with dyspnea. In this group irradiation produced an almost immediate disappearance of the mediastinal tumor and of the compression symptoms in the patients in whom leukemic blood changes had not yet appeared, although the leukemic blood picture developed from a few weeks to several months later. On the other hand, in children in whom irradiation was employed after the characteristic blood picture was present, it was without benefit. The opinion has been expressed that such patients with mediastinal tumors but without leukemic blood changes really have mediastinal lymphosarcoma which was transformed into leukemia by the irradiation. This seems quite unlikely: (1) because of the large number of instances of massive mediastinal infiltration in which acute leukemia develops without irradiation, (2) because many patients with mediastinal or other lymphosarcomas receive irradiation without the later appearance of leukemic changes and (3) because other patients, the case of one of whom is cited in this paper, are ill for more than a month with symptoms referable to the leukemic state but without leukemic blood, but in whom a leukemic blood picture develops without previous irradiation.

ABSTRACT OF DISCUSSION

DR. F. C. RODDA, Minneapolis: Dr. Cooke's careful study and analysis of fifty cases of acute lymphatic leukemia is very instructive. A well developed case may be readily recognized, but as to the onset this is not so. I have in mind two instances in which colleagues with operative proclivities removed the tonsils and adenoids shortly after the onset of leukemia. One survived for a short period, and the other died promptly from hemorrhage. Infiltration of various parts of the body may be easily recognized and, again, easily overlooked. An increase in the size of the spleen is expected. The infiltration of the mediastinum, from the resultant dyspnea and striking demonstration from the roentgenogram, is readily recognized. It is not as well known, however, that infiltrations may involve such other organs as the liver and the kidneys. Formerly it was taught that an acute lymphatic leukemia would always be accompanied by a high white count. As Dr. Cooke has shown, this is not necessarily true. While the differential count is tremendously important at times, it may be very hard to be sure of the diagnosis. It is sometimes not possible to say that a particular type of cell found in the blood is absolutely indicative of an acute leukemia. Then one is thrown back on the history, the physical examination, the blood examination and the clinical course of the disease, which Dr. Cooke has so well outlined.

Pseudo-Ivory and True Ivory.—A chemical analysis of true ivory shows that its composition is similar to that of human bone, both differing only in the amount of magnesium phosphate and calcium carbonate they contain. Ivory contains about 43 per cent organic matter, while dentin contains only 25 per cent. Ivory substance has the tensile strength essential to the permanency of shape and is of a morphologic structure similar to that of bone without showing any tendency toward absorption. Its chemical and morphologic similarity to human bone explains why it is a nonirritant to the tissues. Clinically, it has been proved in my experience for the last twelve years that ivory remains in the tissues if introduced aseptically and in proper shape. This also has been proved in cases in which ivory has been found unchanged in human structures for thirty years. . . . Strict differentiation of true ivory from the so-called pseudo-ivories is essential, as their behavior in the tissues depends on their composition.—Malinjak, J. W.: Cartilage and Ivory, *Arch. Otolaryng.* **17**:649 (May) 1933.

THE SYSTOLIC MURMUR

ITS CLINICAL SIGNIFICANCE

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The physical causes or mechanism of the systolic murmur and its clinical significance have been matters of much discussion for many years. There was a time, not so very long ago, when on hearing a systolic murmur over the heart, even in the absence of any other important abnormalities, the physician would pronounce the ominous verdict that the patient was suffering from organic heart disease with mitral insufficiency. He would also imply in this diagnosis a serious prognosis and institute restrictions in the mode of life for his patient. More recently, systolic murmurs have been found so often to be benign that an entirely opposite point of view has developed. It has become the teaching in many localities that "systolic murmurs have no significance whatever," that "organic mitral insufficiency does not exist except with mitral stenosis" and even that "auscultation is of no great importance," for it is not the valvular but the myocardial state that determines the efficiency of the circulation. The extreme position in this controversy is indicated in a remark that Sir James Mackenzie frequently made: that "the stethoscope should be thrown away and the physician should learn how to elicit the early symptoms of heart failure." It is not my purpose in this paper to analyze the physical factors that produce a systolic murmur but to indicate how its presence should be regarded from a clinical point of view, when it should be considered important, and when it may be viewed lightly. It will also be made clear that a proper understanding of the systolic murmur may at times serve as the starting point of the correct diagnosis in cases that otherwise are misinterpreted.

At the outset it is necessary to define the systolic murmur, so that there may be no misunderstanding concerning terms. The term should be limited to a bruit that has an appreciable duration, lasting for a considerable interval of time between the first and second heart sounds. It must have a significant duration entirely apart from its intensity. Frequently systolic murmurs are supposed to be present when on careful auscultation one merely hears a slightly prolonged first heart sound and a perfectly clear and silent interval between the first and second sounds. Because systolic murmurs are regarded as insignificant, physicians, hospital interns and medical students frequently state that they hear such a faint murmur, knowing that no great attention will be paid to it and fearing that some one else might hear one if they did not. Repeatedly after the most careful auscultation I have failed to find any systolic murmur whatever when others have said they had heard one. The first requisite, therefore, is that the bruit must have an appreciable duration after the first heart sound and last into systole.

A second necessary prerequisite in this discussion is that the intensity of the systolic murmur must be estimated. We all indicate the amount of albuminuria or glycosuria in quantitative terms. A slightest possible trace of albumin in the urine has a different meaning than a very large trace. The former would be very rare during the height of so-called nephrosis, and the latter would be rare during the febrile course of a simple pneumonia. Likewise, the intensity of the Wassermann reaction, the presence of globulin in the spinal fluid, and many other conditions are customarily indicated by terms such as +, ++, +++, ++++. Similarly, for some years I have expressed the intensity of the systolic murmur in six gradations. Grade 1 is the faintest bruit that can be heard on careful auscultation. Although faint, it must have a definite duration into systole. This can be called a slightest possible murmur. Such murmurs are frequently overlooked in general practice. A murmur of grade 6 intensity is extremely rare and may be applied to the few instances in which the murmur can be heard with the naked ear held even at some distance from the chest wall. This one may be called the loudest possible murmur. Murmurs of grades 2 to 5 are intermediate and may be designated slight murmur, moderate murmur, loud murmur, and very loud murmur. It is remarkable that with a very little experience independent observers will designate the same murmur with practically identical terms. Physicians who have worked with me for a short time will differ by no more than one gradation, and in the majority of instances there has been absolute agreement. This has been gone into in some detail because I believe that without such a nomenclature there will be only confusion and no progress in the clinical interpretation of systolic murmurs.

It is current knowledge that systolic murmurs occur in the presence of organic valvular disease and in congenital and other types of heart disease. It is also known that they are present under conditions in which the heart is not diseased. If there is regurgitation of blood through the mitral valve, there will be a systolic murmur at the apex of the heart. The experimental production of mitral insufficiency in animals results in a systolic murmur, and clinical conditions in which all the evidence points to a regurgitation of blood through the mitral valve also show apical systolic murmurs. The presence of mitral insufficiency and a systolic murmur, however, does not necessarily indicate disease of the mitral valve. The valve may be incompetent but not diseased. Patients with hypertensive, syphilitic or myocardial disease of any sort may have a sufficiently dilated left ventricle so that the mitral orifice is increased in size, and normal valve leaflets may be incompetent and fail to prevent reflux of blood with systole. On the other hand, there will be a systolic murmur from mitral insufficiency without any appreciable dilatation of the left ventricle if the valve itself is diseased and the leaflets are retracted. The former condition one may call relative or functional and the latter, organic mitral insufficiency. It does not follow that the patient with relative mitral insufficiency has a less serious condition than the one with organic. In fact, the contrary is often the case, because the underlying organic disease of the heart muscle is the more important consideration. It is only when there is no important disease at all and a systolic murmur is present that it can truly be called benign or insignificant.

When a systolic murmur is heard and its intensity has been gaged, further evidence of organic cardiovascular disease must be sought. It is sound practice to assume that there is cardiac disease if the heart is found to be enlarged and except for very rare instances when a diastolic murmur is also present. If there are indications that the patient is having or has had a rheu-

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matic infection, it is likely that the systolic murmur indicates a structural or organic defect of the valve. But it must be borne in mind that a large proportion of patients who have gone through a rheumatic infection are not aware of it. A systolic murmur in a young person, therefore, is often an important and sometimes the only clue that the patient is rheumatic.

When a patient with a systolic murmur shows no other obvious evidence of cardiac disease, what other factors must be considered that may be related to the production of this murmur? The important ones are hypertension, anemia, hyperthyroidism, fever and increased heart rate. Although these conditions are by no means invariably associated with a systolic murmur, an extensive experience teaches that in some way they are often related to the presence of the murmur and that the murmur may disappear as these factors are controlled. How the systolic murmur develops under such a variety of conditions is not clearly understood. There is one mechanism that deserves more consideration than it has obtained: the speed of blood flow. In hyperthyroidism, fever, and marked anemia, and after or during physical effort, the speed with which the blood stream is ejected from the heart and travels through the circulation is increased. A snapping character of cardiac systole is common to all these conditions and it may be that this snap and rapid ejection of blood may produce the bruit which disappears as the heart quiets down. In the past, such murmurs were often ascribed to relative dilatation of the mitral valve or to changes in the blood itself. Directly after a brisk effort in normal persons there is practically invariably a systolic murmur that develops temporarily at a time when the heart is not dilated, when the sounds are hyperactive, and when the velocity of blood flow is increased. This mechanism probably explains many systolic murmurs in otherwise normal hearts and possibly in some diseased hearts.

It may now be asked how often systolic murmurs are encountered in general practice or in so-called normal individuals. In a recent study,[1] 1,000 cases were carefully examined with this in mind. The relative frequency and intensity of the murmur at the apex and base of the heart, whether it was louder with the patient upright or recumbent, and its occurrence in the two sexes were analyzed. The cases were chosen from the wards of a children's hospital, the surgical wards of the Peter Bent Brigham Hospital, a tuberculosis sanatorium, and among normal nurses and physicians. Only a small number of medical ward cases were included, so that there would not be many patients with primary organic heart disease. The distribution was about equal between the two sexes. Many normal and all sorts of abnormal conditions were included. There were seventeen instances in which a systolic murmur of grade 3 intensity or louder was heard. In every one of these cases, obvious cardiovascular disease was present. In most instances the cardiac condition was an incidental finding during the course of some other illness, such as fracture of the femur or herniotomy. This strongly emphasized the importance of estimating the intensity of the murmurs, for the louder ones were invariably associated with some form of organic heart disease.

There were 196 patients (19.6 per cent) out of the 1,000 examined in whom a murmur of grades 1 or 2 was heard. When the cases were carefully analyzed to eliminate all possible contributing factors such as obvious heart disease, a past history of rheumatic fever, hypertension, anemia, hyperthyroidism and fever, there remained only forty-five patients, or 4.5 per cent, who had a systolic murmur, and in thirty-four cases the intensity of the murmur was grade 1. The important point was that frequently when a murmur was present an investigation of all the data elicited a reasonable or possible clinical explanation of it. One must not infer that, even when an explanation was found, the condition was to be regarded as serious. In fact, most of these patients were well and probably will continue so for many years. Some, however, probably will later develop hypertension or rheumatic valve disease or subacute bacterial endocarditis, although it is not possible to predict what will happen in any individual case.

It has become the custom among many physicians, especially those examining for insurance companies and civil service commissions, to auscult the heart before and after effort and to draw certain inferences from the finding of a systolic murmur brought out in this way. In a study of ten normal medical house officers it was found that in nine a systolic murmur of grade 1 or 2 intensity developed after a brisk effort, which was not present before. Its appearance can therefore be regarded as a normal phenomenon under these circumstances.

To illustrate the application and value of the point of view expressed, in relation to a systolic murmur, a few experiences will be cited. During the routine examination of forty first-year students at the Harvard Medical School sometime ago, I found only one with a systolic murmur. The intensity of the murmur was grade 2. The young man was well and had practically no complaints. The murmur could not be dismissed and on closer scrutiny a few suspicious evidences of hyperthyroidism were detected. The basal metabolism was then found to be elevated and he was subsequently treated for hyperthyroidism. Here the systolic murmur was the first clue to the proper diagnosis of hyperthyroidism. Although the systolic murmur here might be regarded as benign and certainly did not indicate any organic disease of the valves or the heart itself, it did require interpretation.

A second patient came into the hospital with a diagnosis of left renal stone. He had been working when a pain in the left loin, radiating down to the groin, suddenly developed. Following this, he passed bloody urine. This was confirmed on urinary examination and the case was demonstrated in the hospital as one of renal colic. I found that he had an apical systolic murmur of grade 2 intensity, which led to a more direct questioning concerning his health. He had not been in his usual health for a month before this acute pain occurred and admitted that he had had a heart murmur for many years, since an attack of rheumatic fever. The provisional diagnosis of subacute bacterial endocarditis with renal embolus was made, which thereby explained the presence of the murmur. A blood culture taken that day, although the temperature was only 99.2 F., showed Streptococcus viridans. This also illustrates the importance of the consideration of a systolic murmur in diagnosis.

The development of subacute bacterial endocarditis in patients who have had a "benign" and symptomless systolic murmur is by no means rare. I have repeatedly seen this occur, and it emphasizes the fact that, although these systolic murmurs were not accompanied by any impairment in the efficiency of the circulation, they must have indicated some minor irregularity in the

1. Freeman, A. R., and Levine, S. A.: Ann. Int. Med., to be published.

integrity of the mitral valve on which a subsequent bacterial endocarditis developed.

There is a further group of patients in whom a so-called benign systolic murmur subsequently developed into an organic condition. Reference is made to those cases that years later show definite evidence of mitral or aortic stenosis. I have repeatedly seen patients who had a systolic murmur at the apex or base of the heart and gave no other objective or subjective evidence of heart disease. In some, a past history of rheumatic infection could be elicited, and in others it was absent. In the course of some years, definite evidence of stenosis of the mitral valve or the aortic valve occurred. The follow-up study of these murmurs showed that, although originally unassociated with any impairment of the circulation, they were organic and not benign.

Systolic murmurs unaccompanied by other significant evidence of heart disease occur not infrequently in so-called nervous hearts or neurocirculatory asthenia. They are then apt to be faint, not greater than of grade 2 intensity and generally of grade 1 intensity. They are also seen in patients with vasomotor instability and hyperactive hearts. Such patients often show blood pressure readings in the upper limits of normal and not infrequently develop real hypertension later. This is by no means invariable, for some individuals carry a slight systolic murmur for a great many years and die of old age without ever having any embarrassment from their hearts.

It follows from these considerations that a systolic murmur will have greater significance if the heart rate is slow, when there is no fever, anemia or hyperthyroidism, and when the blood pressure is low. If present in the absence of such circumstances a systolic murmur of grade 2 intensity will probably be found to be due to some organic changes in the heart. That does not mean that the patient should be restricted in his activities if there is no other reason for protecting the heart. He may even carry on quite normally and indefinitely, but there is some likelihood of heart disease such as mitral or aortic stenosis, hypertension, or bacterial endocarditis developing further. Systolic murmurs of the faintest intensity (grade 1) are not very rare and occur in a sufficient number of persons who are otherwise normal that their diagnostic value is extremely slight, although they also are found associated with organic disease.

CONCLUSION

Systolic murmurs do occur but are not common in normal individuals. The louder ones are always associated with some form of cardiovascular disease. All systolic murmurs deserve consideration. Many such murmurs, although frequently regarded as "benign" because the individuals feel well and have no symptoms of cardiac insufficiency, are due to organic changes or indicate potentialities for the subsequent development of stenosis of the mitral or aortic valves, hypertension and subacute bacterial endocarditis. Others are truly benign in the sense that no deleterious effects result, even after an indefinite period.

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ABSTRACT OF DISCUSSION

DR. JAMES B. HERRICK, Chicago: It seems to me that our fathers in physical diagnosis, when they wrote the chapter on the diagnosis of heart disease, put in the systolic murmur to make it more difficult; but it is there and I do not think we are justified in eliminating it. It is our duty to interpret it, even though there are difficulties and dangers of misinterpretation. I agree with Dr. Levine that we should take what might be called a middle course. He has referred to the fact that the murmur may call attention to the existence of something other than heart disease, perhaps anemia or hyperthyroidism. There are two conditions in the heart itself that may be betrayed early by the systolic murmur: a rheumatic heart and a beginning sclerotic change in the valves. We should not be compelled, even though the textbooks tell us so, to defer our opinion concerning every systolic murmur until the heart is large, the second sound accentuated, the patient cyanotic or with râles in the chest. The early recognition through this murmur of remote dangers may enable us to advise the patient how he should live and thus postpone the day of evil. I have practiced medicine long enough to see a crop of these systolic murmurs that I recognized ten, twenty and thirty years ago come to fruit, sometimes with the same murmur that the patients had, and in as good health, but many times with broken down hearts of one type or another. In the war, much emphasis was laid by the medical department on the innocuousness of the systolic murmur. I know from observation that there were tragedies that followed the conscription of some individuals. Back in the fifties, men like Bamberger and our own Austin Flint spoke of the inorganic murmur, the hemic murmur and the accidental murmur. Mackenzie was by no means the first one to emphasize the fact that misrepresentation of the murmur was often made, and with calamitous results. I wish to endorse Mackenzie's emphatic disapproval of the treatment of a murmur in the treatment of a heart merely because it has a murmur. Many of these heart murmurs are in patients who need no digitalis, who need no rest. Some of them need not even be told that they have a murmur. In the other case, a word of caution without undue alarming of the patient is entirely in order.

DR. FRED M. SMITH, Iowa City: The systolic apical murmur occupies an unusual position in cardiac diagnosis. The mere fact that it is so common and so often not indicative of organic disease leads to many mistaken diagnosis. The organic systolic murmur gives information with reference both to the endocardium and to the myocardium, and in each it is frequently among the earliest and most conspicuous signs of structural change. The murmur that occurs during the early stage of a rheumatic infection is for the most part dependent on the dilatation of the auriculoventricular ring. If the patient is seen at a later stage, the systolic murmur may again be the most noteworthy observation and again probably largely responsible for the diagnosis. Then, too, as pointed out by Dr. Levine, the systolic murmur may be the first to suggest the possibility of a subacute bacterial endocarditis or lead to the diagnosis of a thyrotoxicosis. Finally, in the degenerative form of heart disease the systolic murmur over the apex is taken into consideration in estimating the extent of the myocardial damage. All physicians have encountered systolic apical murmurs which at the time of the examination could not be classified as functional or organic. In questionable cases all aspects of the problem must be taken into consideration, including the past history with particular reference to rheumatic fever, the presence of a possible infection, and the associated cardiac condition. In the absence of a history of rheumatic fever or of an infection, the significance of the murmur is determined wholly by the associated manifestations, and of these the size and configuration of the heart are by far the most important. If one can demonstrate to one's satisfaction by physical and roentgenologic examination that there is no alteration in the size and shape of the heart, organic heart disease is for the most part excluded. Occasionally, however, it may be necessary to postpone final judgment until there is time for further possible developments.

DR. SAMUEL A. LEVINE, Boston: It is not necessary to change a patient's mode of life merely because one hears a murmur. As Dr. Herrick said, one does not treat the murmur. The attitude of trying to interpret the systolic murmur is warranted because it may give a clue to what may be going on in the heart. It will be found that some of the patients who have been well all the time will develop outspoken aortic stenosis or mitral stenosis ten years later. One hasn't erred in the meantime, and it has been illuminating in picturing the development of a certain disease. That type of knowledge, I think, will prove fruitful.

THE CLINICAL VALUE OF HUMAN CAPILLARY STUDIES

IN FEVER, MENTAL DEFICIENCY, NEPHRITIS, VASCULAR DISEASES, CLUBBED FINGERS, ARTHRITIS, TOBACCO SMOKING AND ARGYRIA

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Although the capillaries as a group exercise the most profound influence on the functions of the living body, their activity, especially in man, has been susceptible of direct study for only a short era in the history of medical science. A great volume of instructive work has since been produced, much of which has been confined to animals other than man. My purpose in this discussion, however, will be to outline briefly some of the more recent observations concerning the activities of the minor vessels of the skin in man which appear to have some value clinically, either (1) in adding evidence which results in changes in certain conceptions of physiology in normals, or pathologic variations in disease processes, or (2) in giving information of direct value in the study of single patients or groups of patients with similar diseases.

It should be clearly stated at the outset that although the capillaries may, under certain conditions, appear to have some independence of action, any studies such as those to be outlined must consider the capillaries as part of, and acting in relation to, the entire circulatory system and, indeed, the body as a whole. The vessels of the skin are also influenced by environmental factors.

The nailfolds offer the most favorable area for capillary study. Whenever indicated, however, observations have been made elsewhere on the body surface. The methods used have been previously described.[1]

OBSERVATIONS ON THE MECHANISM OF FEVER

Observers have noted that the surface temperature rises in fever and that during a chill there is actually a sudden drop in temperature, which is followed by a rise again, often to a higher level than before. With a rise in temperature a great increase in the number of active capillaries and the rate of flow can be readily seen under the capillary microscope.

With the hope of helping to explain the cause and significance of this activity, we[2] made the following observations on man:

By means of a potentiometer and a thermocouple junction in the tip of a hypodermic needle, we were enabled to take temperature readings of the circulating blood and other tissues, following the work of Foged[3] and others.[4] In a series of afebrile patients it was found that the intravenous temperature, taken in the median cubital, jugular or branches of the saphenous veins, was always lower than the oral, hence rectal, temperature.[5] The least difference between the oral and intravenous temperature was 1.2 F.; the greatest difference thus far noted was 13 F. In a small series of patients the intra-arterial temperatures were also lower than the oral temperature but higher than the intravenous temperature. Foged reports two cases in which he secured intra-arterial readings. In one, the temperature equaled the rectal temperature, and in the other, it was lower than the rectal temperature. Further readings are necessary to establish definitely the relative position of the arterial temperature.

The intramuscular temperature was found to be uniformly higher than the oral temperature.

We then studied the relationship between the oral, the intravenous and the intramuscular temperature in fever under four groups: (*a*) fever produced by a disease process, i. e., pneumonia, Hodgkin's disease, rheumatic fever, pulmonary tuberculosis, bacterial endocarditis and the like; (*b*) fever produced by the hyperdiathermia machine (General Electric) as high as 105.0 F. by mouth; (*c*) fever produced by a 36 meter wavelength condenser machine (hyperthermy spark gap-Lepel) as high as 104.5 F.; (*d*) fever produced by the intravenous injection of B. typhosus vaccine.

In all cases, whatever the etiology of the fever, the same general relationship was maintained; namely, intravenous lowest, then mouth, and intramuscular temperature highest.

The greatly increased capillary activity, with the consistently highest intramuscular temperatures, and the lower blood temperatures seems to indicate that the object of the additional blood supply may be not a direct increase in local heat but rather a means of supplying the cells, especially of the muscles, with an increased food supply for metabolic activity and associated heat generation. There is inevitably a diffusion of this increased heat from the blood by conduction and radiation.

THE RELATIONSHIP BETWEEN CAPILLARY DEVELOPMENT AND MENTAL DEVELOPMENT

Jaensch and his co-workers[6] in Berlin have clearly shown that in cretinism and certain other mental deficiency diseases the lack of mental development is paralleled by the lack of development of the capillaries of the skin. If thyroid extract is given to cretins early in life, the increase in intelligence accompanies increase in capillary development. The exact relationship between the increased circulatory activity and the improvement in mental and physical activity has not been determined.

Children with deficient mental and physical development show pathologically developed capillaries,[7] but those with delayed physical development, but of normal or superior intelligence, show normal capillaries.[8]

In patients afflicted with hemiplegias from infancy, the capillaries on the affected side maintain the archiform state, while those of the unaffected side develop

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From the Department of Medicine, New York Post-Graduate Medical School, Columbia University.

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1. Duryee, A. W., and Wright, I. S.: Modern Technic for the Study of Human Capillaries, Am. J. M. Sc. **185:** 664 (May) 1933.

2. Wright, I. S., and Johnson, H. J.: Temperature of Circulating Blood and Other Tissues with Associated Observations of Capillary Activity, Proc. Soc. Exper. Biol. & Med. **30:** 758 (March) 1933.

3. Foged, Yena: Blood Temperature in Man, Scandinav. Arch. f. Physiol. **59:** 109 (May) 1930; The Temperature of the Blood, Hospitalstid. **73:** 1079 (Nov. 6) 1930.

4. Harris, K. E., and Marvin, H. M.: Temperature of Venous Blood and Its Use in Estimating Rate of Blood Flow to Hand, Heart **14:** 1-17 (April) 1927. Bradburn, H. B., and Blalock, A.: Relationship of Changes in Blood Flow Through an Extremity to Changes in Temperature, Am. J. Physiol. **91:** 115, (Dec.) 1929.

5. Temperatures of the mouth were used because (1) changing the thermocouple or from thermocouple to mercury thermometer introduced a possible source of error; (2) it was easier to be certain that the tip of the needle rested firmly against the undersurface of the tongue (known tissue); (3) the use of the needle made rectal readings more difficult, uncertain and perhaps uncomfortable; (4) the relationship between oral and rectal temperature has been fairly well, though not exactly, established.

6. Jaensch, Walther; Wittneben, W.; Hoepfner, T.; von Leupodt, D., and Gundermann, O.: Die Hautkapillarmikroskopie, Halle, Carl Marhold, 1929; Die Biologie der Person **2:** 954, Berlin, Urban & Schwarzenberg, 1931.

7. Powdermaker, Florence: Capillary Forms in Relation to Certain Problems in Development, Arch. Neurol. & Psychiat. **22:** 1207 (Dec.) 1929.

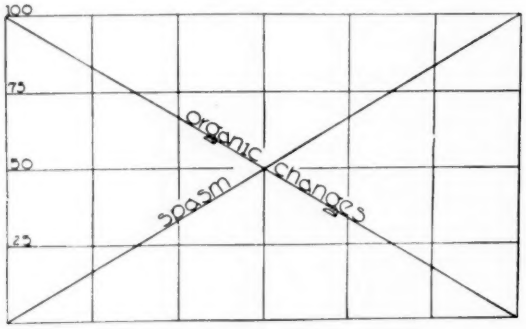
8. Leader, S. D.: Capillary Microscopy in Children, Am. J. Dis. Child. **44:** 403 (Aug.) 1932.

normally.[9] The relationship between the development of the nervous system and the capillaries seems clearly established. The relationship between the activity of these two systems will be discussed later.

NEPHRITIS

It seems likely as a result of the studies of various workers that acute glomerular nephritis should be looked on as a manifestation of a pathologic condition in which the capillaries generally show evidence of damage, rather than as a local disease of the kidneys. There is a constant elevation of capillary pressure during the acute stages.[10] This returns to normal (from 19 to 26 mg. of mercury) with convalescence. In scarlet fever with complicating acute glomerulonephritis, Kylin found that the capillary pressure increases for several days before the onset of albuminuria. In cases with no increased pressure, nephritis did not develop.

Pathologically, the primary kidney lesion is found in the glomerular capillaries. Huckel[11] feels that the reason that the glomeruli are not all affected rests on the fact that many are inactive a large portion of the time and hence would not be exposed to toxins circulating in the blood. The active glomeruli would be the first affected. The edema seems likely to be due to



Relative importance of spasm and organic changes in vascular diseases of the extremities.

increased permeability of the capillary walls, increased capillary pressure, or decreased osmotic pressure of the serum proteins either singly or in combination. The cause of the capillary changes is unknown, but it is probable that toxic products from foci of infection play a large rôle.

In chronic nephritis, Mufson[10] has shown a general correlation between the height of the capillary pressure and the degree of renal dysfunction.

THE VASCULAR DISEASES OF THE EXTREMITIES

Capillary microscopy, surface temperature, oscillometric readings, arteriography and tests for determining the degree of spasm present in any affected vessels have resulted in a changed conception of these conditions. The diagnoses of Raynaud's disease, thromboangiitis obliterans, senile arteriosclerosis, diabetic arteriosclerosis and the like still remain important, but two more vital points must now be considered; namely,

1. Approximately what percentage of the circulatory embarrassment is due to spasm and what percentage is due to organic change in the vessel wall?

2. How much collateral circulation has been established?

The answers to these questions tell of the hope one may entertain for successful medical or surgical treatment, and the prognosis of the patient. The accompanying chart illustrates this in a crude way. The sclerotic cases probably belong in the group at the end, indicated as from 90 to 100 per cent; organic change and the pre-Raynaud's cases probably belong in the group at the opposite end, from 90 to 100 per cent spastic. Cases of thrombo-angiitis obliterans may show a great variation in spastic and organic factors, and on these variations rests their hope for successful treatment. This holds true for advanced Raynaud's disease, scleroderma and many other conditions that the profession is thus far frankly unable to fit into the previously accepted classifications. These methods of study aid greatly in determining where such cases fit on this chart, as well as classifying them according to disease nomenclature. In general, the greater the spastic factor the better the prognosis and the more favorable the response to medical or surgical measures, which I shall not attempt to outline in this paper. The amount of collateral circulation is more difficult to estimate, but the greater the collateral circulation the better the outlook.

The work of Landis in measuring the capillary pressure by means of the micropipet in normal persons and during the stages of the Raynaud cycle is important and has been discussed previously.[12]

CLUBBING OF THE FINGERS

The phenomenon known as clubbing of the fingers or toes has long been attributed to some disturbance of the circulation of the blood resulting in a damming back, with stasis and local metabolic changes. Duken[13] stated that a definite capillary pattern exists in cases of clubbing due to chronic pulmonary disease. He described the vessels as long, tortuous, spastic but, as a whole, dilated with an increase in the number active. They presented a granular flow but no stasis. Leader[8] asserted that a definite preclubbing stage could be determined by capillary studies. His cases were all in children and included examples of bronchiectasis, pulmonary abscess and chronic cardiac disease.

We[12] have enlarged our previously reported series to more than fifty adults with very marked clubbing of the fingers. Included in this series were examples of lung abscess, lung neoplasms of bronchiogenic, endothelial and unknown origin, congenital heart disease, chronic pulmonary osteo-arthropathy and clubbing of undetermined cause. These included cases with and without bony changes.

In all seven cases of congenital heart disease the capillaries were uniform in showing marked dilatation with closely packed cells and very sluggish flow. The degree of tortuosity varied greatly.

In the other groups we could determine no uniform results whatever. Some of the most advanced cases of clubbing of the fingers showed normal capillary pictures; and all variations of rate of flow, tortuosity, size and adult types were found. Our observations have served to confirm our former conclusions; namely,

1. The fact that clubbing may accompany congestion of the capillaries in congenital heart disease and certain

9. Marinesco, G., and Bruch, A.: Recherches de capillaroscopie et des troubles vasculaires dans quelques maladies nerveuses et des glandes à sécrétion interne, Presse méd. **38**: 665-670 (May 17) 1930.

10. Kylin, Eskil: Die Hypertoniekrankheiten, Berlin, Julius Springer, 1930. Mufson, Isidor: A Study of the Capillary Pressure in Nephritis and Hypertension, Am. J. M. Sc. **183**: 632 (May) 1932.

11. Huckel, R.: Die Hypertoniekrankheiten, Berlin, Julius Springer, 1930.

12. Wright, I. S., and Duryee, A. W.: Human Capillaries in Health and Disease, Arch. Int. Med., to be published.

13. Düken, J.: Das Krankheitsbild der Bronchietktasie im Kindesalter, Engebn. d. inn. Med. u. Kinderh. **34**: 457, 1928.

other diseases should not lead to the deduction that the stasis of the blood in the major blood vessels is responsible for clubbing, but only that they are coincidental manifestations.

2. Since greatly congested, stagnant capillaries may be present in nailfolds of patients for years without the development of clubbing of the fingers, and since the nailfold capillaries of many patients with advanced clubbing of the fingers appear normal in all respects, serious doubt may be entertained as to any definite relationship between these two conditions.

3. Other possible explanations for clubbing of the fingers, such as disturbance in the lymph drainage, changes in local or general metabolism, or the presence of toxic products, are thus far also without proof.

Of interest in this regard are the unpublished studies of Loeb and Richards[14] of the Presbyterian Hospital of New York. These workers made comparative studies of the chemistry of the blood taken from the two arms in a small series of cases of unilateral clubbing of the fingers, in each instance associated with aortic aneurysm. The following determinations were made from an artery and a vein of each arm; oxygen content, oxygen capacity, oxygen per cent saturation; difference between oxygen readings in the corresponding artery and vein, carbon dioxide content volume per cent, carbon dioxide at 40 mm. pressure of carbon dioxide, difference between carbon dioxide readings in corresponding artery and vein; respiratory quotient, lactic acid, sugar, nonprotein nitrogen, phosphorus, calcium, p_H, and hematocrit readings. The results were such that no difference could be determined between the blood chemistry of the affected and of the unaffected extremity.

ARTHRITIS

Recent work by Kovacs, Wright and Duryee[15] has again opened the problem of the relationship of circulation to arthritis. In more than 100 cases of arthritis of all types, the only consistent changes in the capillaries in the nailfold were found in fingers with joint swellings or Heberden's nodes. The decrease in capillary number and activity here noted could well be explained on the basis of mechanical pressure. I doubt the accurcy of a pathologic estimate based on the examination of nonvital material as to the activity of the capillaries within a joint and maintain that drawing conclusions of the condition and activity of the joint capillaries from observations of the capillaries of the skin should be a matter of great caution.

Further changes, such as lowered surface temperature, slowed capillary flow, and constrictions in the capillaries, were found in varying percentages, but in no instance did these exceed 55 per cent occurrence. Because of this lack of consistency, I cannot consider as proved that changes in the circulation, as indicated by present methods, are uniformly responsible for the pathologic changes found in arthritis.

THE EFFECT OF TOBACCO SMOKING ON THE VESSELS OF THE SKIN

Maddock and Coller[16] reported in 1932 a series of twenty-one subjects in whom smoking tobacco produced a drop in temperature, as observed from the skin of the fingers and toes. Cessation of smoking resulted in a gradual rise in temperature. Johnson,[17] one of my co-workers, has confirmed these observations in a series of thirty-five subjects with the following exceptions: Six subjects showed no change after ten or more minutes of smoking. Two subjects showed an increase in temperature. In each of his subjects the room temperature was lower than the surface temperature taken at the finger tips. The extent of the drop varied from 2 to 11 degrees F. Barker[18] has recently reported similar results. I have observed four patients in whom the surface temperature at the finger tips was equal to the room temperature. In none of these was there any drop on smoking. In two, there was a rise of 2 degrees F.

In certain individuals I have been able to note a marked slowing and often stasis in the capillary circulation at the nailfold during the smoking of a single cigaret. This phenomenon, when present, can be seen after the first few deep inhalations. The temperature drop[17] and the slowing of the capillary flow seem appreciable only when the smoker inhales. The flow apparently is especially affected in subjects who complain of systemic symptoms from the use of tobacco. In some cases the normal circulatory activity returned during the smoking of several cigarets, while in others marked slowing and stasis remained until the completion of the smoking. The slowing could often be observed to follow a timal relationship to deep inhalations; i. e., about ten seconds following the inhalation the flow would slow perceptibly and often stop for varying lengths of time up to fifteen seconds or occasionally longer. It would then regain its former rate, but another puff would cause a repetition of the cycle. Deep breathing of room atmosphere did not in any instance produce this result.

Krogh and Lewis[19] have shown that local temperature is affected by the rate of the arteriocapillary circulation; if the circulation slows up, local temperature falls.

This seems a logical correlation of the temperature and capillary conditions during smoking. The fact that one cannot always succeed in observing the capillary changes with the temperature drop may well be due to the inadequacies of present-day technic. The fact that individuals do not all react with either of these changes may be attributed to different degrees of absorption and sensitivity.

The relationship of this phenomenon to the frequent symptoms complained of by smokers presents an interesting field for speculation. One may ask whether by local action similar spasm, producing ischemia of areas of the brain or heart muscle, may not result in dizziness, nausea, unexplained anginoid pains and other phenomena. However, these symptoms may be produced by stimulation of the various parts of the sypmpathetic nervous system. In several patients, with complaints of tingling of the fingers from various causes, the smoking of a single cigaret would result in an increase in symptoms, accompanied by the phenomena in the capillary bed. Whether the spastic reaction takes place in the arterioles or capillaries cannot at present be determined, but it constitutes a contraindication to smoking with any condition of impaired circulation to the extremities.

14. Loeb, R., and Richards, D.: Personal communication to the author.

15. Kovacs, Joseph; Wright, I. S., and Duryee, A. W.: The Surface Temperature and the Minute Blood Vessels of the Skin in Arthritis, J. A. M. A. **100**: 1018-1021 (April 1) 1933.

16. Maddock, W. G., and Coller, F. A.: Peripheral Vasoconstriction by Tobacco Demonstrated by Skin Temperature Changes, Proc. Soc. Exper. Biol. & Med. **29**: 487-488 (Jan.) 1932.

17. Johnson, H. J.: Personal communication to the author; prepared for publication.

18. Barker, N. W.: Vasoconstrictor Effects of Tobacco Smoking, Proc. Staff. Meet., Mayo Clinic **8**: 284 (May 10) 1933.

19. Krogh and Lewis, cited by Marinesco and Bruch.[9]

These reactions in the blood vessels may be productive of end-results of two distinct types: (1) changes in the blood vessels themselves, and (2) changes based on irregularities in the distribution of blood in the organs which they supply.

The cause of these phenomena has yet to be determined. Carbon monoxide,[20] nicotine, the nicotine-free fraction of tobacco, and various products resulting from the chemistry of burning tobacco must be considered as possible offenders. Barker [18] has presented strong evidence against the smoke from the cigaret paper being a causative factor. In our tests, various standard brands of cigarets were used with similar results.

ARGYRIA

I have recently seen several patients suffering from the bluish-gray discoloration of the skin due to the deposit of insoluble silver albuminate following the long continued administration of a soluble silver salt. In each instance the first visible evidence of this discoloration was noted along the distal margin of the lunulae of the nails in the nail beds and was believed to be cyanosis due to circulatory stasis. The bluish gray then gradually spread under the rest of the nails accompanying its appearance elsewhere in the skin.

Examination of the nailfold capillaries showed a normal appearance with normal to rapid rate of flow. Such a picture will rule out cyanosis due to stasis, which might otherwise be difficult to eliminate during the earliest stage.

The appearance of a bluish-gray zone just distal to the lunula of the nail should be an indication for the immediate discontinuance of any preparation containing a silver salt, at least until the possibility of very early argyria has been ruled out. In my patients, negligence of such precaution seems to have been followed by steady progression of this unpleasant condition.

Whether careful observation and questioning will show that this early sign is present in a large percentage of these patients in time to permit the prevention of generalized bluish discoloration remains to be determined. Evidence in favor of argyria would be lack of any indication of congestion of the nailfold capillary circulation, or of any insufficiency in the pulmonary or major circulation; lack of history of intake of acetanilid or allied substances; absence of spectroscopic bands of sulphemoglobin or methemoglobin in the blood, and, finally, biopsy if desired.

525 Park Avenue.

ABSTRACT OF DISCUSSION

DR. SOMA WEISS, Boston: In the understanding of a number of fundamental clinical problems, knowledge of the state of the capillaries and of the dynamics of the capillary circulation is essential. It is between the capillaries and the tissue cells proper that the most vital functions of the body take place. These functions have remained obscure because of the lack of available methods for their study. Recently, methods have been devised which make possible the estimation of the capillary pressure of the skin, the visualization of the capillary blood flow of the skin and of other bodily surfaces, the estimation of the capillary resistance and, to a certain extent, the capillary permeability. Complicated and inexact some of these methods may be; nevertheless they serve to enter an opening wedge in the clarification of such fundamental problems as peripheral and pulmonary edema, purpuric and other skin lesions, and conditions discussed by Dr. Wright. Physicians still cherish a reserved respect for the physiologic approach to clinical symptoms and problems. They consider physiologic methods complicated and difficult, and often of only academic interest. It is therefore particularly fortunate that Dr. Wright has brought these problems before this gathering. It serves to impress on us that in one problem the naked eye, in another the microscope, in one morphology, and in another physiology brings understanding.

DR. NELSON W. BARKER, Rochester, Minn.: The question of morphology of the capillaries alone has not been sufficiently emphasized. At present there are no satisfactory observations on capillaries which will give definite data concerning what may be departures from the normal. Part of this has been due to the fact that it was extremely difficult adequately to record these morphologic changes. With the advent of the newer photographic methods, as has been shown by Dr. Wright, these records will now be made available. Capillaries have been studied by Brown and Roth for the last eight years, and their observations agree to a great extent with many of the observations made by Dr. Wright, so far as peripheral vascular diseases are concerned. I should like to ask Dr. Wright whether he has observed any specific changes in the morphology of the capillaries in thrombo-angiitis obliterans and, if so, just what these changes are.

DR. IRVING S. WRIGHT, New York: I realize that this work is in a very early stage and that my conclusions may be subject to change in general conception. It is not necessary to have elaborate apparatus to observe the capillaries. In the last twenty-four hours I have put up a simple microscope with a simple lighting arrangement which would enable any physician to observe capillaries in his office. The actual procedure is not difficult. However, one must look at a great many patients before one can draw conclusions, first in normal individuals and then in various disease conditions. One should not feel that this procedure does not offer great possibilities just because he is unable to recognize variations immediately. It takes practice. I would stress the similarity in usefulness between capillary microscopy and the ophthalmoscopic examination of the fundus. In itself it is not a complete diagnostic procedure. It merely helps one to obtain a better conception of the disease processes and their variations. The subject of thrombo-angiitis obliterans presents one of the more difficult problems because, in the first place, the best part of the body surface in which to observe capillaries is the nail fold. Often in cases of thrombo-angiitis obliterans, in the instances in which early gangrene or marked changes have taken place, the nail fold has been involved and the vessels are hard to see. In thrombo-angiitis obliterans, various degrees of spastic and organic factors are present, in some cases the changes that Miss Roth has shown in the exhibit, not unlike those of Raynaud's disease but to a lesser degree. One may safely assume that in the advanced cases the capillary flow has been markedly affected and that the actual structure of the capillaries is difficult to observe. Finally, I would say that my object in the exhibit and in my paper has been to make the medical profession capillary conscious.

20. Gettler, A. O., and Mattice, Marjorie R.: The "Normal" Carbon Monoxide Content of the Blood, J. A. M. A. **100:** 92 (Jan. 14) 1933. Hanson, H. B., and Hastings, A. B.: The Effect of Smoking on the Carbon Monoxide Content of the Blood, ibid. **100:** 1481 (May 13) 1933.

Pernicious and Macrocytic Anemias.—It is now possible to explain why certain cases of macrocytic anemia will respond to both liver extract and autolyzed yeast and others only to liver extract. The difference appears to depend on the presence or absence of the intrinsic factor. In the light of this evidence it is clear that the common factor for producing macrocytic anemia is the failure of the specific reaction between the extrinsic and the intrinsic factors. These anemias should, then, occur both where, on the one hand, the diet is deficient in vitamin B_2, and on the other hand, where, although the diet is not grossly deficient, lack of the intrinsic factor is found. Thus, sprue and the macrocytic anemias of the tropics occur in communities or in individuals partaking of defective diets and show gastric anacidity less commonly than is found in patients with addisonian pernicious anemia, who usually have more normal diet habits. In many cases a combination of gastric defect and dietary deficiency may exist, which would have the same result upon the specific hematopoietic reaction as a total absence of either of its components.—Castle, W. B.: The Etiology of Pernicious Anemia and Related Macrocytic Anemias, *Ann. Int. Med.* **7:2** (July) 1933.

CARCINOMA OF THE JEJUNUM

REPORT OF A CASE

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BATTLE CREEK, MICH.

Carcinoma of the jejunum is encountered so seldom that I feel justified in reporting a case recently seen in the Battle Creek Sanitarium clinic.

As the anatomy and physiology of the intestinal tract is well known, I will merely mention that the theory of carcinoma appearing more frequently in the stomach and lower bowel is based on the fact that they deal with the more solid material, while the jejunal section has to do more with the liquid state and hence is less liable to irritation.

In reviewing the literature, I find that carcinoma of the jejunum is comparatively rare. A report from the Vienna General Hospital by Johnson [1] shows that in a series of 41,883 autopsies not a single carcinoma of the jejunum was found, although in the series there were 343 cases of carcinoma in other parts of the intestinal tract. In 1904, Nothnagel [2] found 9 cases in 3,585 deaths from cancer. In 1927, a study of the literature was made by Hellström [3] from which he collected only seventy cases of carcinoma proved by operation, including both jejunum and ileum, himself reporting three. Since 1927, Morrison,[4] Roblee,[5] d'Allaines [6] and Harris [7] have each reported one case, making in all, up to the beginning of 1931, seventy-seven cases. Since then, some additional cases have been reported.

From the cases reported, it would appear that carcinoma is liable to occur earlier in life in the jejunum than elsewhere in the intestinal tract, in men twice as often as in women, generally growing in a circular

Fig. 1.—Adenocarcinoma with involvement of glandular tubules.

manner and constricting in character, involving but a small cross section of the intestine. These neoplasms are usually adenomatous and metastasize late.

From the Battle Creek Sanitarium.

1. Johnson, R.: Carcinoma of the Jejunum and Ileum, Brit. J. Surg. **9**: 422 (Jan.) 1922.
2. Nothnagel, H., in Gold and Pyle: Cyclopedia of Practical Medicine and Surgery, Philadelphia, Blakiston's Son & Co. **8**: 428, 1904.
3. Hellström, John: Primary Cancer of Jejunum and Ileum, Acta chir. Scandinav. **62**: 465, 1927.
4. Morrison, W. R.: High Intestinal Obstruction Caused by Primary Carcinoma of the Proximal Jejunum, Am. J. Surg. **2**: 154 (Feb.) 1927.
5. Roblee, M. A.: Secondary Adenocarcinoma of the Ovaries from the Jejunum, Am. J. Obst. & Gynec. **18**: 780 (Dec.) 1929.
6. d'Allaines, F.: Sur l'épithélioma primitif du jejuno-iléon, J. de chir. **33**: 449 (April) 1929.
7. Harris, F. I.: Surgical Service of Mount Zion Hospital, Feb. 10, 1931.

The symptoms, which depend largely on the amount of stenosis found in the majority of cases, are diarrhea, constipation, gastric distress and vomiting. There may or may not be visible peristalsis; in this case none was observed. The nonstenotic type is more rare and the symptoms not so well marked.

With a colicky pain in the middle of the upper part of the abdomen, associated with vomiting, especially if the vomitus contains duodenal content with bile, carcinoma of the jejunum should be considered possible.

Fig. 2.—Adenocarcinoma with proliferation of epithelium.

Careful fractional gastric analysis should be made and stools studied for the presence of blood. The stomach may or may not show delay in emptying time. Our case showed a marked gastric delay with ordinary food, but the stomach emptied readily when the barium meal study was made. Gastric acidity may be subnormal, owing to the regurgitation of duodenal content.

Only one line of treatment presents itself in these cases, and that is surgical, either radical or palliative. According to Hellström, the mortality was 36 per cent in seventy cases. The radical operation, according to Harris, offers a 16 per cent chance of cure. The growth usually develops slowly.

Since the prognosis is poor, an early diagnosis is desirable.

REPORT OF CASE

J. D., a man, aged 58, American, a merchant, married, entered the Battle Creek Sanitarium clinic, May 18, 1927, with a history of chronic obstinate constipation, dating back ten years, and gastric digestive disturbance for the past two or three years, manifested by a burning sensation in the region of the stomach, occurring both forenoon and afternoon and occasionally at night, and always relieved by sodium bicarbonate and food. The symptoms did not occur every day, were more pronounced when the patient smoked excessively, were not seasonal, and did not come in attacks. The patient had never vomited; some regurgitation had occurred, but the regurgitated matter was not mixed with blood. He never noticed any black tarry stools. The family history was negative as to constitutional diseases.

The patient had had typhoid, and he had a syphilitic infection at the age of 25. Three years later he was given antisyphilitic treatment. There was nothing else of importance in the previous history.

Repeated blood counts and chemical examinations of the blood, including a Wassermann test, examination of the urine and stool, and a fractional gastric test were made, all being practically negative except that there was a very weak Kolmer and a four plus Kahn reaction.

From May, 1927, to March, 1931, he passed through the clinic yearly with no evidence of serious trouble, but on May 15, 1932, he complained of exhaustion, obstinate constipation

and daily vomiting for the previous three or four weeks. He had lost 10 pounds (4.5 Kg.) during this time.

On physical examination, no tenderness was elicited over the abdomen and no tumor mass was palpable. A neurologic examination was negative. A tentative diagnosis of pyloric obstruction was made.

The fractional gastric test was made with difficulty, owing to the clogging of the tube with spinach eaten twenty hours before, but it showed a slightly subnormal free hydrochloric acid at first with a slight increase during the later periods. With the barium roentgen study, the result was different, the emptying time being slightly more than three and a half hours. In addition to some dilatation of the duodenum, there was a marked dilatation and a greatly delayed motility in a loop of the jejunum. The barium still in the loop at eight and a half hours had disappeared at the twenty-four hour observation.

A recheck of the stomach and small intestine was made under tincture of belladonna, and a third under atropine hypodermically. At the last examination the jejunal loop appeared more dilated than before. The result of the studies indicated quite conclusively that we were dealing not with a spasm but probably with a neoplasm of the jejunum. It was quite evident that surgical assistance was imperative, so a laparotomy was advised and performed.

When the abdomen was opened, all of the ileum was contracted. The upper 18 inches of the jejunum was greatly dilated, about the size of the forearm. The dilated intestine was followed down, and approximately 2 feet from the duodenal-jejunal junction a stenosing neoplasm, which grossly resembled a carcinoma, was encountered. The jejunum was greatly dilated above this band and markedly contracted below. On palpation, no lumen could be made out. There was a group of eight or ten enlarged glands in the mesentery beneath the neoplasm. Three feet of the small intestine was resected, and a cross section of the growth revealed the presence of an adenocarcinoma with metastasis to the mesentery lymph glands.

The patient made a good and uneventful recovery. In February, 1933, he returned to the clinic in fine physical condition, having gained 30 pounds (13.6 Kg.).

ATOPY TO ACACIA (GUM ARABIC)

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AND
HORACE S. BALDWIN, M.D.
NEW YORK

The widespread use of acacia (gum arabic) in medicine and commerce makes it of interest from the standpoint of allergy. In the present paper is reported a case of atopy to acacia which we believe is the first one to be so proved. At the same time, a general review is made of the subject of acacia from the point of view of its chemical and therapeutic interest, and its importance allergically is stressed.

T. P. C., a white man, aged 53, a plaster molder in a large candy factory, admitted to the New York Hospital Allergy Clinic, Oct. 20, 1932, complained of bronchial asthma. His asthma started in July, 1931, six months after he started to work in the factory. Since that time it has been perennial, with increased severity in June and September. There has been no definite history of hay fever. The patient noticed, however, that on coming in contact with the dust of the factory he was likely to sneeze and have a burning sensation in his eyes. It is of incidental interest that eleven months after the onset of asthma he was seized with a typical attack of coronary thrombosis which necessitated his remaining away from work for seven weeks; i. e., from June 10 to about Sept. 1, 1932. During this period he was relatively free from asthma, but on resuming work it returned.

Physical examination, on admission to the clinic, showed the typical râles of asthma and, at the base of the lungs, smaller râles more typical of cardiac decompensation. The liver was not enlarged. There was no dependent edema. The heart sounds were distant. No enlargement was made out. The blood pressure was 140 systolic, 80 diastolic. A special nose and throat examination was essentially negative. An electrocardiogram showed evidence of a previous attack of coronary occlusion. The sedimentation test was within normal limits. The blood showed 8 per cent eosinophils. A Wassermann test was negative.

Skin tests were done with the usual inhalants, and food tests were made by the intradermal method. Mild reactions were obtained to timothy grass and ragweed pollen. The patient was next directed to bring in dust collected from his factory environment, and a scratch test to this sample gave a marked reaction. The dust consisted principally of acacia, cocoa bean, corn-starch, dextrose and plaster. When the separate components were tested, the crude acacia was found to give a markedly positive reaction. Purified acacia was next used for testing and was found to be even more reactive than the crude acacia used at the factory, giving markedly positive reactions, both by scratch and intradermally in as low as 1 : 5,000 dilution. Blood was taken for passive transfer, and again very definitely positive reactions were obtained. Control sites were negative.

The patient was advised to arrange his work bench so that it would be enclosed, with a view to limiting his contact with the factory dust. A series of desensitizing injections was also proposed. By carrying out the first suggestion, his asthmatic state was considerably alleviated, but the series of hyposensitizing inoculations has not been possible in view of the patient's inability to attend the clinic regularly.

In order to see if other routine allergic patients reacted to acacia, thirty cases were tested to this substance by the scratch and intradermal methods. No positive reactions were obtained.

Atopy to acacia is of interest because of its widespread use in commerce and medicine. Botanists define acacia as an exudate of the tree Acacia Senegal. This tree is a member of the large botanical family called Mimosoidiae, related members of which are widely distributed as herbs, shrubs, vines or trees. There is evidence interpreted by Beijerinck [1] as pointing to the elaboration of acacia as a result of the activities of molds, and by Greig Smith [2] as showing that it is a product of the metabolism of certain bacteria. As neither of these workers has proved, however, that contamination of acacia with the appropriate organism does not take place after its formation, the hypothesis that acacia originates through the activities of microorganisms, though attractive from the standpoint of bacterial specificity, must be considered as unproved.

Acacia as it is collected has a mucilaginous appearance. This and similar exudates from other trees comprise the so-called gums of commerce.

Chemically, acacia is classed as an inert colloid and is a member of the polysaccharide subdivision of the carbohydrates. Related polysaccharides are the dextrins, glycogen, cellulose and starch. All these substances are amorphous, odorless and translucent and yield on hydrolysis one or more sugars, generally pentoses and hexoses.

Commercially, acacia is used frequently in the preparation of pharmaceuticals as an emulsifying agent. Its demulcent properties are utilized in the manufacture of large quantities of lozenges, troches and gummy candies.

As a medical therapeutic agent, acacia has been increasingly used in cases of shock, especially in those

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Read before the Meeting of the Society of Asthma and Allied Conditions, Washington, D. C., May 6, 1933.

1. Beijerinck, M. W.: Arch. néerl. d. sc. exactes **19**: 43, 1884.
2. Greig Smith, R.: J. Soc. Chem. Indust., London **23**: 105 and 972, 1904.

caused by loss of blood. In a number of clinics, infusion of acacia has replaced transfusions of blood; at the Mayo Clinic, 3,000 such infusions have been given in the last few years. Recently, infusions of acacia have been reported by Hartmann and his colleagues [3] as of benefit in reducing nephritic edema.

Workers at the Mayo Clinic have lately become interested in the possibility of sensitivity to acacia because of its general use there. Maytum and Magath,[4] in their analysis of patients who had received infusions of acacia, have found only one case that gave an untoward reaction. Skin tests to acacia on this patient were negative. In this case, during a second infusion of acacia, after an interval of seven months, the patient developed nasal obstruction, lacrimation and laryngeal stridor, all of which were at once relieved by the administration of epinephrine. This was the only reaction that occurred in the 3,000 cases mentioned. It should be noted that in most of these cases only one infusion needed to be given. These same workers have attempted to sensitize animals to acacia. In the case of rabbits they were unsuccessful, but of nineteen guinea-pigs sensitized to acacia, seven showed no results; in four, anaphylaxis was mild; in three, it was fairly severe; in two, it was very severe, and three of the guinea-pigs died. From this experiment it was concluded that acacia has mild antigenic properties.

At our request, Dr. Lillian K. P. Farrar, of the Women's Hospital, where infusions of acacia have been frequently used, kindly made skin tests on twelve patients, at intervals of from ten to twenty-five days following infusion. No positive reactions were obtained.

The fact that acacia is listed as a carbohydrate prompted us to have acacia powder analyzed for its nitrogen content by Mr. Vincent Toscani, chemist of the Russell Sage Laboratory at Cornell University Medical College. In this analysis, 0.5 per cent of total nitrogen was obtained. A positive biuret test indicated the presence of protein nitrogen. A sample of the "soluble specific substance" derived from acacia by Heidelberger, Avery and Goebel,[5] which is interesting because of its precipitating activity for types II and III antipneumococcus serum, was obtained through the kindness of Dr. Heidelberger. This failed to give a positive skin reaction either in the patient herein described or by passive transfer. Whether this finding has any bearing on the problem of whether the specific excitant in acacia is of carbohydrate or of protein nature is doubtful, as evidence is given by Heidelberger and his associates that "the specifically reacting substance for the pneumococcus type II and III immune serum is formed from the original gum arabic, probably by removal of a pentose grouping in glucosidic union, since the specific fraction contains less than one half of the pentose of the gum arabic itself."

SUMMARY

1. In a case of bronchial asthma due to sensitivity to acacia, the sensitivity was confirmed by clinical history, direct skin testing and passive transfer.

2. Efforts to find positive reactions to skin tests on patients following infusions of acacia have been unsuccessful. Nevertheless, since the possibility of sensitivity to acacia exists, it is deemed advisable that patients should receive skin tests, previous to the administration of acacia parenterally, in order that a detrimental reaction may be avoided in case the skin test should indicate sensitivity.

2 East Ninety-Fourth Street—135 East Sixty-Fifth Street.

3. Hartmann, A. F.; Senn, M. J. E.; Nelson, Martha, and Perley, Anna M.: The Use of Acacia in the Treatment of Edema, J. A. M. A. **100**: 251 (Jan. 28) 1933.

4. Maytum, C. K., and Magath, T. B.: Sensitivity to Acacia, J. A. M. A. **99**: 2251 (Dec. 31) 1932.

5. Heidelberger, Michael; Goebel, W. F., and Avery, O. T.: The Soluble Specific Substance of Pneumococcus, J. Exper. Med. **42**: 709-727 (Nov.) 1925.

Clinical Notes, Suggestions and New Instruments

MODIFICATION OF HANK'S CERVICAL DILATOR

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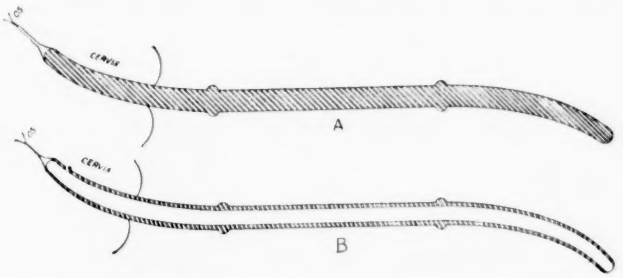
Probably few physicians who practice gynecology do not have a set of Hank's dilators in their instrument case. These dilators are very handy to use as a preliminary dilator before using a double bladed instrument and they give sufficient dilatation in many cases. Cervical tears can hardly result from the use of this dilator. There has always been one serious objection to the Hank dilator, however, this being the back pressure induced by the pumping action when the instrument is inserted into the canal, the dilator acting as a piston (shown at *A* in the illustration).

Several years ago, I was especially impressed with this objection when Sampson brought out the possibility of endometrial tissue being spilled from the ends of the tubes into the pelvis. Whether or not one is inclined to accept Sampson's theory as regards endometrial tissues and transplants, it remains a fact that infectious material may easily be forced out the end of an infected tube. Considerable force is established when a solid sound is forced into the cervical canal, which can very easily be overcome by using a modified Hank



A, diagrammatic cross-section of solid Hegar sound being inserted into cervix, showing piston action of sound; *B*, cross section of modified dilator, showing continuous canal through which pressure is released as generated.

dilator, the old set being satisfactory for alteration provided they are of the hollow type. If they are of the solid type, they cannot be drilled in a satisfactory manner.

In order to overcome the piston action, it is necessary that a continuous canal extend from end to end of the dilator as shown at *B*, thus releasing the pressure as it is generated. If the instrument is hollow, it is only necessary to have holes drilled in the ends and the edges smoothed. The set I have was made through a dealer in New Orleans, before the sets were made hollow.

While this alteration was made for use as a dilator, I have found the smaller sizes to be of use in office work as a urethral dilator and catheter, and as an electrode in diathermy to the cervix. The drainage feature here is an advantage over the solid electrode.

Should the instrument manufacturers feel that this alteration is justifiable, I am sure that it will be accepted by the medical profession as a safeguard against the only objection to an otherwise most useful instrument.

1110 Rosalie Avenue.

DEATH FOLLOWING INGESTION OF FIVE GRAINS OF ACETYLSALICYLIC ACID

B. R. DYSART, M.D., PASADENA, CALIF.

It cannot too often be emphasized that the allergic individual may be sensitive to any drug. Lamson and Thomas [1] recently reported a death and three other serious reactions following the use of an "asthma powder" containing acetylsalicylic acid. Several allergic specialists have stated that the two drugs which give the most frequent reactions are morphine and acetylsalicylic acid.

REPORT OF CASE

Miss F. G., aged 45, an art teacher, had suffered from "asthmatic attacks" of increasing severity for fifteen years, the onset following an automobile accident. She suffered also from chronic pansinusitis, and numerous minor nasal operations were done by my associate Dr. W. H. Wimp and myself for the removal of recurring polypi and drainage of different sinuses, since her asthma became unbearable when drainage was blocked. During the last three years epinephrine by hypodermic injection, self-administered, was necessary, sometimes as often as every two hours. During the last two years epinephrine frequently failed to give relief, and she was helped greatly by adding codeine, one-fourth grain (0.016 Gm.), to each injection of epinephrine. In spite of this condition, she managed to continue her teaching.

About nine months before death the patient underwent skin tests by a competent allergist and was found sensitive to many foods. Removal of these items from her diet gave only slight relief.

July 14, 1932, the patient called her maid, saying she was going to take an "aspirin" for her headache and that she might need help as she had had two bad reactions on previous occasions when this drug had been taken. About one minute after taking one tablet she began to wheeze and asked the maid to get a towel wrung out of hot water, which she placed over her chest. She then gave herself an injection of epinephrine. In spite of this, the wheezing became worse and she asked the maid to call her physcian. Before the maid could find the telephone number the patient died; the time between taking the tablet and death was probably about ten minutes.

Autopsy showed a normal heart, some tenacious mucus in the bronchi and a sarcoma of the dura "about the size of an English walnut," located over the left cerebral hemisphere (coroner's report).

COMMENT

Allergic patients should be cautioned about the harmful possibilities of any drug and should be advised to try any new drug in very small amounts.

65 North Madison Avenue.

ATROPINE POISONING: RECOVERY AFTER 7½ GRAINS OF ATROPINE SULPHATE BY MOUTH

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Edward Bok Fellow in Medicine, Medical Clinic of the Hopital of the University of Pennsylvania

Recently an opportunity arose to observe a patient with atropine poisoning who had purposely taken, by mouth, 7½ grains (0.5 Gm.) of atropine sulphate, well dissolved in water. The interesting features in connection with the case are: first, no reports have been found in the literature in which an individual has taken more than 5 grains (0.3 Gm.) of this drug and recovered; second, this patient recovered, although the stomach was not evacuated until one and a half hours after ingestion of the drug; third, there is no known effective antidote, and, fourth, acute pulmonary edema was an unexpected and apparently paradoxical feature of the case.

REPORT OF CASE

A man, aged 20, a senior pharmacy student, was brought to the emergency ward of the University Hospital at 11 a. m., Feb. 17, 1933, in a maniacal condition. The temperature was 104 (axillary), pulse 170, respirations 44. He was wildly delirious. The pupils were widely dilated; the skin was flushed, and the buccal mucosa was dry. An hour previously, his brother, also a pharmacist, noticed the parched lips, dilated pupils and general excitement of the patient. Because the patient had previously admitted knowledge of a drug—atropine—which "would end it all," a tentative diagnosis of atropine poisoning was made. The patient had not vomited. Gastric lavage with large quantities of sodium bicarbonate was done in the receiving ward, and 50 cc. of a saturated solution of magnesium sulphate was placed in the stomach. The patient was then sent to the medical ward.

Salient physical observations on admission were dry parched lips and mouth; cyanosis of the face, lips and hands; hyperpnea; pulse, 180; blood pressure, 180 systolic and 60 diastolic; heart action tumultuous (but with regular rhythm); delirium with purposeless fighting movements; completely dilated pupils (which did not respond to sharp light); temperature, 104 (axillary), and a silent abdomen. The lungs were filled with moist râles, and an acute pulmonary edema was evident. Phlebotomy of 500 cc. was done, with prompt lessening of the cyanosis and decrease in the pulmonary moisture. An indwelling catheter was inserted and 400 cc. of urine was obtained. At times when respirations became shallow, a mixture of 10 per cent carbon dioxide and 90 per cent oxygen was administered by inhalation.

A red blood count before phlebotomy was 5,500,000; white blood count, 21,000; hemoglobin, 115 per cent; 93 per cent of the white cells were neutrophils. Urinalysis showed only an occasional granular and hyaline cast. Plasma carbon dioxide, blood urea nitrogen, and blood sugar estimations were normal.

A jute tube was passed and 5,000 cc. of water was given within the course of forty-five minutes, over half of which was soon vomited. Continuous hypodermoclysis of physiologic solution of sodium chloride was begun, and cold sponges were used in an effort to reduce the high fever.

About eight hours after admission, attempts to speak were noticed, and the patient paid some attention to those about him. Peristalsis was now audible. Throughout the night the patient continued his occasional maniacal outbursts and 2 grains (0.13 Gm.) of phenobarbital was given by mouth.

The following morning, February 18, the patient's condition was greatly improved; the temperature was 101.8 F.; pulse, 128, and respiration rate, 32. By noon, he had become quite cooperative, and his mouth had assumed its normal state of moisture. February 19, the temperature was 100 F.; pulse, 96, and respiration rate, 24, and the patient was cooperative enough to allow a more satisfactory physical examination, which disclosed a normal cardiac action, only an occasional whistling râle in the chest, normal abdomen, and good muscle power in the extremities with normal reflexes. The power of visual accommodation had returned, and the pupillary contour and reflexes were normal. Blood examination now showed: red blood cells, 4,900,000; white blood cells, 21,800; hemoglobin, 95 per cent. A differential count disclosed 93 per cent polymorphonuclear cells (63 per cent nonfilament forms, and 30 per cent filament); platelets, 234,000. A blood Wassermann reaction was negative with all antigens.

An adequate history was obtained from the patient at this point. Following several unsuccessful attempts at suicide, he dissolved 7½ grains of atropine sulphate in a small bottle of water and drank it about 9:30 a. m. on the day of admission. The atropine was obtained from the drugstore of his brother, also a pharmacist. Shortly afterward, he noticed some dizziness, dryness of the mouth and blurring of vision, and then remembered nothing.

Because of the history of repeated attempts at suicide, he was removed to a psychiatric institution, where a report ten days later stated that the patient was in good condition, with a normal temperature, pulse and respiration rate.

COMMENT

The maximum dosage of atropine sulphate taken by mouth varies from 1 to 5 grains (0.065 to 0.3 Gm.).[1] Individuals have recovered from atropine given hypodermically, the dose vary-

1. Lamson, R. W., and Thomas, Roy: Some Untoward Effects of Acetylsalicylic Acid, J. A. M. A. **99**: 107 (July 9) 1932.

1. Goddard, N. A.: Case of Recovery After 5 Grains of Atropine Sulphate, Med. Times, New York **26**: 365, 1898. McKone, J. J.: Two Cases of Atropine Poisoning, J. A. M. A. **11**: 304 (Sept. 1) 1888. Gross, S. W.: Case of Poisoning by 3 Grains of Atropine, Am. J. M. Sc. **58**: 401-408, 1869. Travers, F. A. O.: Recovery from a Large Dose of Atropine Sulphate, Brit. M. J. **1**: 1051, 1889.

ing from one-tenth to 1⅓ grains (0.006 to 0.085 Gm.).[2] Poisoning has also followed the eating of berries of large fruiting shrubs of Atropa belladonna,[3] atropine in the conjunctival sac,[4] belladonna plasters to the breasts or scrotum,[5] the eating of rabbits or turkey that had fed on belladonna berries,[6] and the instillation of rectal suppositories containing atropine.

Treatment of reported cases has varied widely: prompt evacuation of the stomach when possible, in most instances morphine sulphate from one-fourth to one-half grain (0.016 to 0.032 Gm.) hypodermically, and sometimes pilocarpine.

Because death, when it occurs from atropine poisoning, is always in the depression stage, it seemed unwise to administer large doses of sedatives, especially morphine. Pilocarpine, although possessing properties of opposite action from those of atropine, is not an effective antidote because the myoneural junctions, which have been paralyzed by the latter drug, cannot respond to pilocarpine.

SUMMARY

1. A case recovery following poisoning with 7½ grains of atropine sulphate constitutes, to my knowledge, the largest reported dosage of this drug in man.

2. The stomach could not be evacuated until one and a half hours following ingestion of the drug.

3. Morphine was not used because of the possibility that death in the depression stage might be hastened thereby. In the absence of any known effective antidote, treatment was confined to attempts at "elimination" by catharsis and diuresis from forced fluids and by venesection, which was also indicated because of the presence of acute pulmonary edema.

2. Pedigo, L. G.: Case of Atropia Poisoning Successfully Treated with Amyl Nitrite, Virginia M. Monthly **15**: 81-87, 1888-1889. Martin, R. S.: Recovery from Poison by Large Dose of Atropine Sulphate, M. Bull. Philadelphia **10**: 150, 1888. Axtell, E. R.: Atropine Sulphate 2/5 Grain Hypo, New York M. J. **51**: 146, 1890. Landesberg, M.: Atropia Poisoning, M. Bull. Philadelphia **3**: 11, 1881. McIntyre, A. S.: A Case of Atropine Poisoning, M. Age **14**: 142, 1896. Fieldstad, A. H.: A Remarkable Case of Atropine Poisoning, Australian M. Gaz. **14**: 131-135, 1895.

3. Joll, A.: Three Cases of Belladonna Poisoning, Lancet **2**: 647 (Oct. 7) 1916.

4. Currie, C. E.: A Rare Case of Poisoning by Atropine, Chicago M. J. & Exam. **48**: 73, 1884. Heller, G.: Atropine Poisoning in a Child, J. A. M. A. **92**: 800 (March 9) 1929.

5. McCartney, J. H.: A Case of Atropine Poisoning Without Dilatation of the Pupils, M. News **61**: 306, 1892. Ketkar, R. K.: Toxic Symptoms from Local Application of Belladonna, Indian M. Gaz. **56**: 451 (Dec.) 1921.

6. Firth, D., and Bentley, J. R.: Belladonna Poisoning from Eating Rabbit, Lancet **2**: 901 (Oct. 29) 1921. Seelye, H. H.: Atropia Poisoning from Eating Turkey, M. Rec. **45**: 14, 1894.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS.

PAUL NICHOLAS LEECH, Secretary.

HOSEPT NOT ACCEPTABLE FOR N. N. R.

"Hosept" is the uninforming proprietary name under which the Homer Laboratories, Inc., markets a preparation claimed to be "The Ideal Cleansing Douche for Feminine Hygiene."

In presenting Hosept to the Council, the manufacturer stated, "The Jackson County Medical Society has approved our product for advertising purposes." Inquiry directed to the Jackson County Medical Society of Missouri brought the reply that the product had never been approved by that organization; that no Hosept advertisement had ever appeared in its journal. Exploitation of an alleged official sanction, apparently to gain repute for a doubtful pharmaceutical, is to be condemned.

Though the names of the ingredients of Hosept appear on the package, no quantitative statement is there made. In the information presented to the Council, the Homer Laboratories, Inc., claim for the preparation the following composition:

	Per Cent
Chloramine Technical	28.671
Sodium Perborate	26.785
Sodium Chloride	42.857
Alum-Potassium	00.892
Boracic Acid	00.892
Berberine Sulphate (Neutral)	q. s. to color
Oil of Peppermint	q. s. to odor

The firm states that Hosept should be used in the proportion of one teaspoonful to two quarts of warm water, "As an adjunct to office treatment of leucorrhea, gonorrhea and trichomonas vaginalis. Also as a cleansing douche." The following pharmacologic action is claimed:

> "In solution the Chloramine T. releases free chlorine which impairs the normal action of the aerobic bacteria and also acts as an antiseptic; Sodium Perborate releases nascent oxygen in solution which impairs the normal action of the anaerobic bacteria; Sodium Chloride serves as a dehydrant; Alum-Potassium is slightly astringent; Boracic Acid is slightly antiseptic; Berberine is palliative. Reaction—alkaline."

Contraindications are not stated. No evidence, either clinical or experimental, has been submitted in confirmation of any of the manufacturers' claims.

A teaspoonful of Hosept was found to weigh about 5 Gm. In the dilution recommended by the manufacturer, approximately the following concentrations would obtain: chloramine 0.07 per cent, sodium perborate 0.065 per cent, sodium chloride 0.1 per cent, alum 0.002 per cent, boric acid 0.002 per cent. All these substances would exist in concentrations considerably below those in which they are usually considered effective. The lower therapeutic limit for chloramine is said to be 0.1 per cent; for sodium perborate a 2 per cent solution is active. The entire mixture would be greatly hypotonic, so that the sodium chloride content could hardly be considered "dehydrant." The alum and boric acid contents would be so low that no noticeable effect could be expected from them. No evidence has been brought to the attention of the Council that berberine, an alkaloid which partakes largely in the pharmacologic effects of hydrastis, may be termed a "palliative," whatever that may mean. Considering its pharmacologic potency, a statement of percentage content would be advisable. It is difficult to see what advantage the berberine sulphate ingredient might confer on the concoction; it would certainly have the disadvantage of imparting a deep yellow stain to linen and clothing.

Hosept is described as "The Ideal Cleansing Douche for Feminine Hygiene"; it is evident that this superlative is in no way justified.

The Council declared Hosept unacceptable for New and Nonofficial Remedies because it is marketed with unwarranted claims under an uninforming name and because it is an unscientific mixture containing an excessive number of ingredients recommended for use in practically ineffective concentration.

KONDREMUL (PLAIN) AND KONDREMUL WITH PHENOLPHTHALEIN NOT ACCEPTABLE FOR N. N. R.

Kondremul (from chondrus and emulsion) is the coined, proprietary name under which the E. L. Patch Company markets an emulsion stated to contain liquid petrolatum, 55 per cent, incorporated with Irish Moss (Chondrus crispus). Kondremul with Phenolphthalein is stated to contain in addition 1.1 grain of phenolphthalein to each tablespoonful dose. The amounts of liquid petrolatum and of phenolphthalein are not declared on the labels or in the advertising submitted for the products.

In its consideration of these products with the submitted advertising, the Council found (*a*) that the coined name Kondremul is objectionable in that it does not suggest the composition or the chief potent ingredient, liquid petrolatum, and because the preparation does not present sufficient originality to warrant the application of a proprietary name; (*b*) that the claim made for the prevention of "leakage," as in the case of other similar emulsions, is unwarranted; (*c*) that the advertising statements giving the impression that the symptoms of constipation are so numerous and varied as to include the entire field of medicine and surgery should be discontinued or so worded as to avoid this impression; (*d*) that the trade package circulars should be revised to omit reference to "constipation."

When informed of the Council's consideration, the E. L. Patch Company submitted arguments to show that Kondremul is a more stable emulsion than others of its type, that it causes no "leakage," and that therefore the use of a coined name is justified. The Council was not convinced by these arguments. The Council's referee reported that he had observed splitting of Kondremul in the intestine of an experimental animal and also after simple shaking of the mixture for a short time with about

twenty times its volume of water containing about 0.1 per cent of hydrochloric acid. The claim for absence or prevention of "leakage" has not been accepted by the Council for any similar emulsion, though it has been frequently made.

Later the firm submitted revised circulars in which the objectionable statement regarding constipation has been deleted, but the word "constipation" was not deleted from the revised trade package circular. The product is still marketed under the name Kondremul. The firm also submitted a report of trials made under the direction of a physician to show that the product in comparison with others causes or is accompanied by no measurable "leakage." The Council's referee reported that this work does not afford evidence of the superiority of Kondremul over other emulsions of liquid petrolatum. The firm's report states that in each instance the daily dose given was 15 cc., but the directions for the use of Kondremul call for twice that amount, one tablespoonful in the morning and one on retiring. It is misleading to compare one tablespoonful of liquid petrolatum with that dose of the emulsion which contains only about half the volume of liquid petrolatum. The report shows variation in the diameter of droplets in Kondremul of from 6 to 40 microns; in another commercial product of from 6 to 80 microns. No essential difference is apparent. The fact that Kondremul emulsion separates on standing causes the referee to suspect that a fresher specimen of Kondremul than of the compared preparation was used. This would be of no importance even though there was always an average difference of 11 microns in the diameter of the oil droplets. In the report the "leakage" appears to have been measured as the amount of oil that separated from the stool. That is not the commonly accepted meaning of the term; it refers to the escape of oil in amounts that soil the clothing or render the parts about the anus oily.

The Council voted to confirm its decision that Kondremul (Plain) and Kondremul with Phenolphthalein are unacceptable for New and Nonofficial Remedies because the amount of potent ingredient is not stated on the labels because the claims for absence of "leakage" is unwarranted, and because the products have not sufficient originality to justify the use of the proprietary and uninforming name Kondremul.

Committee on Foods

GENERAL COMMITTEE DECISIONS

THE COMMITTEE ON FOODS AUTHORIZES THE PUBLICATION OF THE FOLLOWING GENERAL COMMITTEE DECISIONS ADOPTED FOR ITS OWN GUIDANCE AND FOR THAT OF FOOD MANUFACTURERS AND ADVERTISING AGENCIES ON FOOD COMPOSITION AND FOOD ADVERTISING.

RAYMOND HERTWIG, Secretary.

FORTIFICATION OF FOODS OTHER THAN TABLE SALT WITH IODINE OR IODINE COMPOUNDS

The fortification of foods other than table salt with iodine or iodine compounds for dispensing additional food iodine to the public and supplementing that naturally present in foods is unnecessary and may lead to excessive iodine intake and endanger public health. Foods so fortified, other than table salt, will not be eligible for acceptance.

"HEALTH FOOD" CLAIMS AND THE TERM "HEALTHFUL"

The term "health food" and equivalent claims or statements to the effect that a food gives or assures "health" are vague, misinformative and misleading. An adequate or complete diet and the recognized nutritional essentials established by the science of nutrition are necessary for "health," but "health" depends on many other factors than those provided by such diet or nutritional essentials. No one food is essential for "health"; there are no "health foods." Statements of well established nutritional or physiologic values of foods are permissible.

The term "healthful" is frequently encountered in food advertising. As used, it commonly means that the food described corrects a possible nutritive deficiency or some abnormal condition in such a manner as actively to improve health. It incorrectly implies that the food possesses unique (or unusual) health-giving properties. The term has a popular specific "health food" significance which makes its use in advertising misinformative and misleading.

"Healthful" and "wholesome" by dictionary definition have almost identical meanings; the former, however, intimates an *active* significance, whereas the latter signifies quality or condition. "Wholesome" indicates that a food so described is sound, clean, fit for consumption and free of any objectionable qualities; it is appropriate for characterizing foods fulfilling these qualifications and should replace "healthful" as used in food advertising.

REPORTS OF THE COMMITTEE

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

JELKE GOOD LUCK MAYONNAISE

Manufacturer.—John F. Jelke Company, Chicago.

Description.—Mayonnaise containing cottonseed (or corn) oil, eggs, water, sucrose, distilled vinegar, salt and mustard.

Manufacture.—The frozen eggs are beaten; the water and then the cane sugar, salt, mustard, vinegar and salad oil are beaten in consecutively to produce an emulsion which is homogenized and automatically filled into glass jars.

Analysis (submitted by manufacturer).—

	per cent
Moisture	23.4
Ash (salt free)	0.3
Sodium chloride (NaCl)	1.8
Fat (ether extract)	65.4
Protein (N × 6.25)	2.9
Reducing sugars as invert	0.0
Sucrose	5.0
Lipoid phosphoric acid (P_2O_5)	0.107
Total phosphoric acid (P_2O_5)	0.111
Carbohydrates (by difference)	5.6
Titrable acidity as acetic acid	0.4

Calories.—6.2 per gram; 176 per ounce.

Claims of Manufacturer.—Conforms with the respective United States Department of Agriculture definition and standard.

SPINTRATE

Manufacturer.—Spinach Products Company of South Carolina, Columbia, S. C.

Description.—A dried powdered spinach; an abundant source of vitamins A, B and G, iron and iodine.

Manufacture.—Fresh, selected, hand picked spinach is trimmed of the butts and bruised or discolored leaves, washed in water, rinsed and centrifugated to remove adhering surface water. It is dried in a specially constructed apparatus in a recirculating current of practically inert gas, largely carbon dioxide, the temperature of which does not exceed 66 C. The dried product is pulverized and screened; the powder of desired fineness is mechanically packed in glass jars.

Analysis (submitted by manufacturer).—

	per cent
Moisture	7.9
Ash	13.6
Fat (ether extract)	4.5
Protein (N × 6.25)	31.5
Crude fiber	8.4
Carbohydrates other than crude fiber (by difference)	34.1
	Average (parts per million)
Iron (Fe)	530
Calcium (Ca)	10,700
Phosphorus (P)	6,400
Copper (Cu)	10
Manganese (Mn)	140
	parts per billion
Iodine	700

Calories.—3.0 per gram; 85 per ounce.

Vitamins.—Biologic report shows that vitamins C and D are practically absent; the product contains 6,000 units

(Sherman) of vitamin A per ounce (nearly half the A potency of cod liver oil and four times that of butter) and 60 units (Sherman) of vitamin B complex per ounce (approximately that of dried brewers' yeast). The vitamin B content is about twice and the G content about equal to that of dried brewers' yeast.

Claims of Manufacturer.—Especially adapted for use in the diet of infants and the sick in accordance with the physician's directions. It is an excellent source of utilizable iron for counteracting nutritional anemia and an abundant source of food iodine.

HAWAIIAN FINEST QUALITY PINEAPPLE
VACUUM PACKED (CRUSHED, SLICED AND TIDBITS)
(1) BURKE'S, (2) CAMEL, (3) DEXTER'S, (4) FAIRWAY, (5) HALE'S LEADER, (6) HALE'S PRIDE, (7) HAPPY HOUR, (8) HOMESPUN, (9) ROUNDY'S, (10) S AND F, AND (11) TABLE QUEEN BRANDS

Packer.—Hawaiian Pineapple Company, Ltd., San Francisco.

Distributors.—1. The Burke Grocery Company, Cincinnati.

2 and 7: Campbell Holton and Company, Bloomington, Ill.

3 and 9: Roundy, Peckham and Dexter Company, Milwaukee.

4: Twin City Wholesale Grocery Company, St. Paul and Minneapolis.

5 and 6: Hale-Halsell Company, McAlester, Okla.

8: Phillips-Lewis Co., Inc., Richmond, Va.

10 and 11: Smart and Final Company, Ltd., Pasadena, San Bernadino, Santa Ana, Wilmington and Los Angeles, Calif.

Description.—Canned pineapple (sliced, crushed and tidbits) packed in concentrated pineapple juice syrup with added sucrose. The same as Doles 1, 2 and 3 Hawaiian canned pineapple products (THE JOURNAL, April 8, 1933, p. 1106, and April 29, 1933, p. 1338).

HOMOGENIZED PASTEURIZED MILK ADVERTISING OF McDONALD DAIRY COMPANY

Manufacturer.—McDonald Dairy Company, Flint, Mich.

Description.—Advertising of bottled, pasteurized, homogenized milk.

Preparation.—Milk delivered cold from producers under city department of health inspection is tested for milk fat, acidity and sediment and its reaction to methylene blue; unsatisfactory milk is rejected. Acceptable milk is pasteurized by the holding method (68 C. for thirty minutes), cooled to 52 C., homogenized under 3,000 pounds pressure, cooled to 4 C. and automatically filled in bottles which have been washed in 3 per cent sodium hydroxide solution.

Analysis (submitted by manufacturer).—

	per cent
Moisture	87.4
Total solids	12.6
Ash	0.7
Fat	3.8
Protein (N × 6.38)	3.2
Lactose (by difference)	4.9

The butter fat varies between 3.8 and 4.0 per cent.

Calories.—0.7 per gram; 20 per ounce.

Claims of Manufacturer.—The cream does not separate. The curd formed in the stomach is softer than that from unhomogenized milk.

ROTH'S RYE BREAD

Manufacturer.—The A. Roth Baking Company, Newport, Ky.

Description.—Rye bread prepared by the sponge dough method (method described in THE JOURNAL, March 5, 1932, p. 817) from wheat "clear" flour and medium dark rye flour, water, powdered buttermilk, salt, caraway seed, yeast, lard and malt syrup.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	35.6
Ash	1.0
Fat	1.9
Protein (N × 6.25)	10.4
Crude fiber	0.9
Carbohydrates other than crude fiber (by difference)	50.2

Calories.—2.6 per gram; 74 per ounce.

GLADIOLA PATENT FLOUR-PHOSPHATE ADDED (MATURED, BLEACHED)
FANT'S FAIRY PATENT FLOUR-PHOSPHATE ADDED (MATURED, BLEACHED)

Manufacturer.—Fant Milling Company, Sherman, Texas.

Description.—Patent flours milled from a blend of soft and hard wheats containing 0.5 per cent of added calcium acid phosphate; bleached.

Manufacture.—Selected wheat is cleaned, scoured, tempered and milled by essentially the same procedures as described in THE JOURNAL, June 18, 1932, page 2210. Chosen flour streams are blended and bleached with a mixture of benzoyl peroxide and calcium phosphate (1 part to 50,000 parts of flour) and with nitrogen trichloride (one-ninth ounce per 196 pounds), and admixed with calcium acid phosphate (1 part to 195 parts of flour).

Analysis (submitted by manufacturer).—

	per cent
Moisture	13.0 –14.0
Ash	0.76– 0.80
Fat (ether extraction method)	0.8 – 1.2
Protein (N × 5.7)	9.0 –11.0
Crude fiber	0.3 – 0.5
Carbohydrates other than crude fiber (by difference)	76.1 –72.5

Calories.—3.5 per gram; 99 per ounce.

Claims of Manufacturer.—Phosphated patent flours intended especially for biscuit baking.

CLAPP'S ORIGINAL PUREE OF ASPARAGUS

Manufacturer.—Harold H. Clapp, Inc., Rochester, N. Y.

Description.—Strained cooked asparagus. The method of preparation is efficient for retention in high degree of the natural vitamins and minerals.

Manufacture.—Purchased canned asparagus is strained in an atmosphere of water vapor and subsequently treated as described for Clapp's Original Baby Soup (THE JOURNAL, June 24, 1933, p. 2011).

The canned asparagus is prepared from young, tender asparagus, which is washed, inspected to remove unsuitable material, again washed, cut into small pieces and packed into tins; hot water is added; the cans are passed through an exhauster to remove absorbed air, sealed, cooked under pressure and immediately cooled.

Analysis (submitted by manufacturer).—

	per cent
Moisture	94.1
Total solids	5.9
Ash	1.2
Fat (ether extract)	0.2
Protein (N × 6.25)	1.4
Crude fiber	0.5
Carbohydrates other than crude fiber (by difference)	2.6

Calories.—0.2 per gram; 6 per ounce.

Vitamins and Claims of Manufacturer.—See Clapp's Original Baby Soup (THE JOURNAL, June 24, 1933, p. 2011).

HOSTESS MAYONNAISE

Manufacturer.—Hostess Products Corporation, Long Island City, N. Y.

Description.—Mayonnaise in glass jars containing refined cottonseed oil, fresh egg yolk, water, cider vinegar, salt, sucrose, mustard and white pepper.

Manufacture.—Egg yolk, salt, sugar and spices in definite proportions are beaten at high speed in a mixing machine; the oil is beaten in and then the water and vinegar. The emulsion of mayonnaise is automatically filled into glass jars. Only enough mayonnaise is manufactured from day to day to care for immediate orders.

Analysis (submitted by manufacturer).—

	per cent
Moisture	10.9
Ash	1.2
Sodium chloride (NaCl)	1.1
Fat (ether extract)	84.5
Protein (N × 6.25)	0.9
Carbohydrates (by difference)	2.2
Titratable acidity as acetic acid	0.3
Lecithin-phosphoric acid (P_2O_5)	0.058
Unsaponifiable matter	0.3
Estimated egg yolk solids	3.7

Calories.—7.7 per gram; 219 per ounce.

Claims of Manufacturer.—Conforms to the U. S. Department of Agriculture definition and standard for mayonnaise.

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SATURDAY, AUGUST 5, 1933

ETIOLOGY OF HEAT CRAMPS

Talbot and Michelson [1] have recently reported studies bearing on the etiology of heat cramps. The subjects were men employed in the construction of the Hoover dam in Nevada, who, in the course of their work, were exposed to the extreme summer heat of the Colorado River basin desert. The symptoms varied from vomiting and dizziness to mild and severe cramps in the muscles of the legs, arms and abdomen and were associated in all cases with profuse sweating. Similar observations have been made by others on miners, iron workers and stokers laboring under much the same working conditions.

In the present instance, the subjects were seen soon after entering the hospital and a sample of venous blood was obtained before any treatment had been instituted. Both chemical analysis and morphologic examination of the blood were carried out and certain analyses of the urine also were made. The most striking change in the composition of the blood during heat cramp is a diminution in both the total base and the acid ions; the change is more pronounced in the latter and is accounted for largely by the drop in content of chloride. There is also a concomitant loss of water from the circulation. Treatment consisted of physiologic solution of sodium chloride either subcutaneously or intravenously and milk in quantity as the only food. After the salt and liquid had been given, both the total base and the acid ions approached the normal level of concentration in the blood; at the same time the urinalysis showed a retention of sodium chloride and of water for several days. These observations indicate that the profuse sweating incident to vigorous exertion in extreme heat results in a loss of water and sodium chloride through the skin severe enough to be reflected in the acid-base and water balance of the body.

The pathogenesis of heat cramps thus appears to be defined rather succinctly by these recent chemical studies. The loss of salt and water and the replacement of fluid alone through intake of water diminish the osmotic pressure of the interstitial fluid. The tissues tend to lose chloride in an attempt at adjustment to the hypotonic surrounding medium, and at some level characteristic of the individual there occur the neuromuscular disturbances typical of heat cramps. Other suggestions have been made to explain the origin of this syndrome. Thus it was at various times said to result from acute muscular degeneration, from water poisoning and from temporary cessation of kidney function. However, it appears that the evidence based on studies of the water and salt balance before treatment and the resulting chemical changes provide a more tenable theory for the etiology of heat cramps. Supporting evidence is afforded in the records of prevention of this disturbance through the free use of milk and of saline drinks of various kinds. No doubt practical preventive therapy will be developed for the occupations concerned when the data on the critical level of base and chloride in the blood, the approximate extent of sweating and the salt in the food are equated on the basis of clinical statistical experience.

1. Talbot, J. H., and Michelson, J.: J. Clin. Investigation **12**: 533 (June) 1933.

RECENT STUDIES OF VITAMIN C

It was to be expected that biochemists would devote themselves assiduously to the intriguing problems of the isolation and identification of the vitamins. Recent years have witnessed considerable progress in this field of research. The purification of vitamin D, for example, has proceeded to a point at which well crystallized active antirachitic substances of surprising potency have been secured. Both German and English investigators have reported the production of purified products of which 1 mg. is equivalent to 40,000 international (rat) units. From yeast, workers [1] in the department of biochemistry at Oxford have separated "crystals" that act antineuritically in the conventional pigeon test in daily doses of less than 2 gammas; that is, 0.000002 Gm. This is greater than the activity of other crystalline preparations previously described. The identification of the potent principle in these instances remains to be established.

Even more satisfactory has been the progress in the investigation of vitamin C, the antiscorbutic principle. The false hopes raised by the alleged association of this vitamin with the alkaloid narcotine have been shattered. On the other hand the evidence now seems clear that vitamin C is a hexuronic acid, more recently designated as ascorbic acid.[2] The distribution of vitamin C in fruits and vegetables is now generally recognized. One of the citrus fruits is commonly used to supply, through its juices, a standard solution for the estimation of antiscorbutic potency. In a quest for suitable source material for the preparation of ascorbic acid, Svirbely

1. Kinnersley, H. W.; O'Brien, J. R., and Peters, R. A.: Crystalline Preparations of Vitamin B from Baker's Yeast, Biochem. J. **27**: 232, 1933.

2. Szent-Györgyi and Haworth: Nature **131**: 24, 1933.

and Szent-Györgyi [3] of the University of Szeged in Hungary have discovered the strong antiscorbutic properties of paprika, the Hungarian red pepper (Capsicum annuum). Out of its juices large quantities of ascorbic acid have been prepared and purified in a variety of chemical ways, with a yield of more than 0.5 Gm. from each liter of paprika juice. In animal experiments, 0.5 mg. of the crystalline product protected guinea-pigs —the conventional test animals—from scurvy. This affords another illustration of the remarkable physiologic potency of vitamins.

It has been known for some time that the suprarenal cortex normally contains considerable amounts of the hexuronic acid now identified as vitamin C. Recent studies [3] have demonstrated that the content of ascorbic acid in the glands is greatly decreased under conditions that give rise to scurvy. For example, in animals fed liberal amounts of spinach, nearly a milligram of ascorbic acid per gram of the suprarenal was estimated to be present. With lowered intake of antiscorbutic foods, the content of vitamin C in the glands decreased. On a vitamin C-free diet it gradually dropped as low as 0.03 mg. per gram. The same striking phenomenon of parallelism was observed with varying intakes of ascorbic acid. These investigations suggest that there is a wide limit between health and scurvy and that animals fed on restricted amounts of the vitamin, though showing no sign of scurvy, are greatly depleted of their vitamin store. Herein probably lies the chemical explanation of so-called latent scurvy in man. It is an interesting fact that in species such as the dog and the rat, which are not susceptible to scurvy, the suprarenals are not readily depleted of vitamin C.[4]

GLOMERULAR FUNCTION

The various theories proposed to account for the production of urine by the kidney involve combinations of the following factors: glomerular filtration, glomerular secretion, absorption in the tubules and secretion by the tubular epithelium. Efforts to obtain experimental evidence in support of one or the other of the theories have been limited by the extremely small size of the unit of structure involved, the glomerulus and the associated tubule. It is obvious that a simultaneous comparison of the chemical composition of the blood in the renal vessels and of bladder urine will yield little cogent information concerning glomerular function and hence the process whereby the urine is actually formed. Of particular interest, therefore, are the recent reports of Richards and his co-workers [1] in which the earlier studies of the collection and chemical analysis of glomerular urine have been confirmed and extended. This further series of investigations seemed necessary, because the principle of glomerular filtration indicated by the earlier experiments was not unanimously supported by the studies of others.

The minute quantity of fluid that it is possible to obtain by direct puncture of the glomerulus with a capillary cannula [2] required the development of special adaptations of standard analytic methods. The procedures thus employed were colorimetric; the reactions are carried out in fine capillary tubes of 0.35 mm. bore. It is thus possible to make certain analyses on volumes of glomerular fluid and protein-free filtrate from blood ranging from 0.03 to 0.5 cubic millimeter containing dissolved substances in quantity from a millionth to a few hundred thousandths milligram with degrees of accuracy of the order of magnitude ordinarily attained with samples of the usual size.

Simultaneous analyses of blood and of glomerular fluid for uric acid indicate that this substance passes through the glomerulus of frogs and snakes by simple filtration. This is especially significant in the reptile, as concentration of uric acid by the glomeruli would facilitate the excretion of waste nitrogen in this species. Reducing substances were present in the same concentration in the plasma of frogs as in glomerular fluid, even after administration of phlorhizin. Likewise a determination of inorganic phosphate in the plasma and glomerular urine of frogs and salamanders showed no difference in concentration in the two fluids. After the injection of a solution of pure creatinine into frogs, the plasma and the glomerular urine contained the same amounts of this metabolite. These recent data, affirming the earlier observations on urea and chlorides, constitute impressive evidence that the elaboration of the characteristic fluid in the glomeruli from the blood consists of simple filtration or of a biologic process yielding essentially the same results as does filtration.

That not all of the vital membranes behave as does the glomerular epithelium is evident from further studies by Walker.[3] He observed that in the cerebrospinal fluid of frogs and of depancreatized dogs there were 30 per cent less reducing substances and 60 per cent less inorganic phosphate than occurred in plasma. In the frog, man, fowl, dog and cat the aqueous humor likewise contains less reducing substance, urea, uric acid and phosphate than does the plasma. Lymph, on the other hand, contains inorganic phosphate and reducing substance in the same concentration as does the plasma. These observations have a significant bearing on physiologic theory and clinical practice and present another triumph of chemical methodology.

3. Svirbely, J. L., and Szent-Györgyi, Albert: The Chemical Nature of Vitamin C, Biochem. J. **27**: 279, 1933.

4. Harris, L. J., and Ray, Surendra N.: Vitamin C and the Suprarenal Cortex, Biochem. J. **27**: 303, 1933.

1. Richards, A. N.; Bordley, James, 3d, and Walker, A. M.: J. Biol. Chem. **101**: 179 (June) 1933. Bordley, James, 3d, and Richards, A. N., ibid., p. 193. Walker, A. M., and Reisinger, J. A., ibid., p. 223. Walker, A. M., ibid., p. 239. Bordley, James, 3d; Hendrix, J. P., and Richards, A. N., ibid., p. 255.

2. Wearn, J. T., and Richards, A. N.: Composition of Glomerular Urine, with Particular Reference to Problem of Reabsorption in Renal Tubules, Am. J. Physiol. **71**: 209 (Dec.) 1924.

3. Walker, A. M.: Comparison of the Chemical Composition of Aqueous Humor, Cerebrospinal Fluid, Lymph and Blood from Frogs, Higher Animals and Man, J. Biol. Chem. **101**: 269 (June) 1933.

Current Comment

SPONTANEOUS RUPTURE OF THE AORTA

A not infrequent cause of sudden and often instantaneous death is rupture of the aorta, a form of death too sudden to present appreciable symptoms or with symptoms so vague and of such short duration that death is explained only by postmortem examination. The exact frequency of rupture of the aorta, independent of aneurysmal sacs, is not known. While by no means frequent, it is probably more frequent than is commonly supposed. Whether under certain circumstances the normal aorta ruptures through inability to withstand the ordinary pressure within it has been the cause of much controversy. Some maintain that the undamaged aortic wall may at times be placed under such stress as to give way in sudden and fatal hemorrhage; others are equally convinced that no spontaneous rupture is possible without antecedent damage or degeneration of vascular tissue. The consensus seems to be that the rupture in most cases, though primarily due to some pathologic condition of the aorta, is immediately caused in nearly all cases, except those due to traumatic accident, by something that increases the arterial pressure. The most frequent causes are strains, sudden muscular effort, as during confinement, hypertrophy of the heart, passions, and similar incidents. Rupture occurs in the greatest percentage of cases near the heart somewhere below the arch and is intrapericardial in most instances. It is next most frequent in the curved portion of the vessel and is least frequently found in the abdominal aorta. In character the lesion falls into three groups. In the first there is complete rupture of all the coats at once, the tear in the outer coat corresponding to that in the inner coat. The interior may be smooth, and the lesion is usually rather sharp, as if cut with a knife. In the second group the inner coat ruptures sometimes before the outer, which usually gives way at one end or the other of the inner tear or at a little distance from it, there being no infiltration between the coats. The tear in the outer coat is usually at right angles to that in the inner coat. In the third group the rupture occurs as in the second but there is infiltration of blood, sometimes extensive, between the coats. In this group fall all cases of dissecting aneurysm of the aorta. To the first group belong about 65 per cent of all cases, to the second about 20 per cent and to the third about 15 per cent. The symptoms are indefinite. In the first group death is usually instantaneous and without recognizable symptoms. Pain is the most constant symptom and usually is severe, tearing and intrathoracic, radiating to the shoulder, back, neck or abdomen. Of other symptoms, dyspnea, collapse, feeble irregular pulse, vomiting, coughing and hemoptysis are occasionally noted. Death does not always take place with the initial tear, as the rupture may penetrate only the inner coat of the arterial wall and not lead to complete rupture. Then within a short time, frequently three or four days, external rupture occurs with sudden death. In some cases the interval may be longer, one of the longest recorded intervals being thirty-nine days. Rarely, recovery may take place with the formation of a healed dissecting aneurysm. Death in the majority of such cases is due to hemorrhage into the pericardium or into the pleura or abdomen, especially when the dissecting aneurysm is extensive. There is no doubt that among the cases of sudden death attributed to heart failure a considerable number are due to spontaneous rupture of the aorta.

THE STRUCTURAL CHANGES IN HUMAN PSITTACOSIS

Knowledge of human disease is based to a large degree on the results of the study by many observers of cases as they occur here and there from time to time. This may be a slow and gradual process. It is now more than fifty years since three necropsies by Eberth on patients who had died from parrot fever, or psittacosis, were published. These three necropsies mark the beginning of the study of the structural changes in this disease. Since then reports of forty-four additional necropsies have been published. On the basis of these widely scattered reports and of the study of five new cases from the 1929-1930 pandemic, Lillie [1] writes an instructive unified account of the pathologic anatomy and histology of parrot fever in man. The characteristic feature is an inflammatory process in the lungs, which is primarily focal or lobular in extent and apparently not closely related to the bronchioles. Even when the lesion is grossly more or less lobar, its primarily lobular nature is evident microscopically. There is nothing really distinctive in the distribution of the lesion in the lungs, which has been noted most frequently in the left lung and least frequently in the lower and middle lobes of the right lung. Usually each case presents various stages in the process. Early the exudate contains fibrin, red cells, leukocytes and alveolar cells; then the fibrin disappears, the red cells become fewer, and the leukocytes are replaced by mononuclear phagocytes and alveolar cells, which undergo degeneration and may appear to become invaded by rickettsia. In the tissue of the septums may be serous exudate and later infiltration with lymphocytes and large mononuclear cells. The bronchioles may remain clear or they may contain the same kind of exudate as the alveoli near by. There may be inflammatory changes in the pleura. In the lymph glands and the spleen, which usually is large and soft, the macrophages are increased. In the liver the Kupffer cells show increase in phagocytic activity; there may be small foci of necrosis, and in one case Lillie noted granulomatous formations like those seen in psittacotic parrots. Punctate hemorrhages may occur in the brain, serous membranes and elsewhere. In the five new cases reported by Lillie, rickettsia — minute, coccobacillary bodies (Rickettsia psittaci) — were demonstrated in large round cells in the exudate in the lungs. In parrots with psittacosis these bodies are found in epithelial cells (intestine, ureter, renal tubules, bile ducts), macro-

1. Lillie, R. D.: I. The Pathology of Psittacosis in Man, and II. The Pathology of Psittacosis in Animals and the Distribution of Rickettsia Psittaci in the Tissues of Man and Animals, Bull. 161, National Institute of Health, Washington, D. C. Government Printing Office, 1933.

plages and reticulo-endothelial cells. These observations naturally suggest that Rickettsia psittaci may be the cause of psittacosis, but no final proof of such a relationship can be offered at this time. This account by Lillie of the structural changes in human parrot fever shows how knowledge of the nature of the disease advances as opportunities to study human material with newer methods present themselves. The solution of the etiologic problem, however, requires experiments on animals.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Tuesday and Thursday from 9:15 to 9:20 a. m., Chicago daylight saving time, which is one hour faster than central standard time, over Station WBBM (770 kilocycles, or 389.4 meters).

The subjects for the week are as follows:

August 8. Grape Juice.
August 10. The Problem of Adoption.

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 9:45 to 10 o'clock over Station WBBM.

The subject for the week is as follows:

August 12. Analysis of Urine.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Portrait of Dr. Mabry.—A painting of Dr. Albert Gallatin Mabry, one of the first trustees of the Alabama Insane Hospitals, was recently presented to the Bryce Hospital by Mr. W. S. and Miss Virginia Mabry, son and daughter of the late physician. Dr. Mabry was associated with the early history of the hospital, having suggested the establishment of a hospital for the insane of Alabama at a meeting of the state medical association in Mobile in 1847, according to a newspaper account. At this time he was appointed to investigate the old state capitol building at Tuscaloosa, which had been vacated when the capitol was moved to Montgomery, to determine the suitability of the building for a hospital. Dr. Mabry was appointed a trustee by the governor in 1857 and served continuously until his death in 1874 at Selma. The portrait was placed in a "Hall of Fame" made up of a group of portraits of other persons distinguished in the history of the Alabama hospitals for the insane, assembled through the efforts of Dr. William D. Partlow, superintendent of the hospitals.

ARIZONA

State Department Establishes Sanitary Division. — In the reorganization of the state department of health, a division of sanitary engineering has been established with the aid of the Rockefeller Foundation, newspapers report. F. Carlyle Roberts, Jr., Tucson, who has been named state sanitary engineer with offices in the state board of health's headquarters, has already begun a survey of water supplies in the state.

ARKANSAS

Personal. — Dr. Allen B. Jemison has been appointed in charge of the departments of epidemiology, milk control and malaria control of the state department of health, effective July 1. He was recently appointed health officer in Jefferson County, succeeding Dr. George A. Hays. Dr. Herbert H. Howze, Little Rock, will replace Dr. Jemison in Jefferson County.

Medical Board Election. — Dr. William W. York, Ashdown, was elected president of the State Medical Board of the Arkansas Medical Society at its meeting in Little Rock, June 19. Dr. William T. Lowe, Pine Bluff, was named vice president and Dr. Albert S. Buchanan, Prescott, secretary-treasurer. Offices of the board have been transferred from Searcy to Prescott.

COLORADO

Dr. Meader Resigns at University. — Dr. Charles N. Meader, dean emeritus, University of Colorado School of Medicine, Denver, has resigned as head of the department of medicine, effective July 1. Dr. Meader has been connected with the school since 1912. In 1914 he was appointed instructor and in 1916, dean and professor of medicine. He resigned as dean in 1925 and was made dean emeritus. Dr. James J. Waring has been appointed professor and head of the department of medicine to succeed Dr. Meader. Other changes at the school include the appointments of Drs. Roy Parsons Forbes and Emanuel Friedman as assistant professors of pediatrics and Roderick J. McDonald, Jr., and Wilford W. Barber, instructors in pediatrics.

CONNECTICUT

Statewide Tuberculosis Campaign.—A resolution authorizing a statewide campaign against tuberculosis was adopted by the house of delegates of the Connecticut State Medical Society, May 25. Emphasis will be placed on the finding of persons with tuberculosis by a new low cost method of making roentgenograms. The plan developed from a project in New Haven in which roentgenograms were made of about 6,400 high school students in an effort to detect tuberculosis (THE JOURNAL, March 11, p. 746). In carrying out the campaign, the state department of health will furnish information to medical societies, physicians and health officers and handle information for the public, and the state tuberculosis commission will interpret the roentgenograms. Persons availing themselves of the reduced prices offered in the campaign will be expected to pay for their own roentgenograms. The interpretation of the films will be reported to local authorities, who will report in turn to the patients or patients' families. The family physician will complete the diagnosis when further study is required and a member of the state commission will be available for additional consultation. The responsibility of the follow-up work will devolve on the health officer. The program will be carried out only in those communities that request it. It is planned to begin the campaign early in the fall.

DISTRICT OF COLUMBIA

Society News.—Dr. Maude E. S. Abbott, assistant professor of medical research and curator of the medical museum, McGill University Faculty of Medicine, Montreal, Que., addressed the Washington Heart Association, April 28, on "Congenital Heart Disease." Dr. Thomas A. Claytor was elected president of the society, May 26, and Dr. James Esler, secretary.

Dr. Hickling Retires as Alienist. — Dr. Daniel Percy Hickling, for many years alienist for the district government, will be retired, September 30, and the work attached to his position will be transferred to the chief psychiatrist of the Gallinger Municipal Hospital, under an order of the district commissioners, July 21. Dr. Hickling, who has been connected with the district government more than thirty years, will reach the retirement age about two weeks before the order becomes effective. He is professor of medical jurisprudence at the National University Law School and professor of clinical psychiatry at Georgetown University Medical School.

FLORIDA

Society News. — Dr. George S. McKnight, Avon Park, addressed the De Soto-Hardee-Highlands Counties Medical Society in Arcadia, June 13, on pellagra.——The Suwanee River Medical Society heard Dr. John D. Gable, Lake City, discuss mental diseases at its meeting in Live Oak, June 9.

Financing Health Units.—The Rockefeller Foundation has given $4,000 to the Florida State Health Department to defray in part operating expenses of health units in the state, it is reported. Since the creation of the three units in Taylor, Leon and Escambia counties, they have been operated with funds supplied on an equal basis by the federal, state and county governments. However, no provision for these funds was made in the economy program of the federal government. It was stated that the Rockefeller Foundation gift would assure the continuance of two of the units, and every effort will be made to continue the three on a full time basis.

GEORGIA

Typhoid in Atlanta.—About twenty-one cases of typhoid occurred in Atlanta recently, the *Bulletin* of the Fulton County Medical Society states. Investigation disclosed a local dairy to be the source of the outbreak and the dairyman to be a typhoid carrier. His license was revoked.

Society News.—Mr. Robert Hudgens of Emory University was elected president of the Georgia Hospital Association at its annual meeting, held in Atlanta, June 29.——Dr. William W. Anderson gave a paper on "Anemias in Infancy," before the Fulton County Medical Society, Atlanta, July 20, and Dr. Richard B. Wilson a clinical talk on "Air Encephalography and Diseases of the Nervous System." Dr. John D. Martin, Jr., presented a case report on reconstruction of the lower lip. Dr. William W. Young addressed the society, July 6, on "Recent Advances in Psychiatric Education," and Dr. Henry R. Donaldson gave a clinical talk on "Vaccine Therapy Treatment of Typhoid Fever."

ILLINOIS

Free Examinations at State Fair.—The Sangamon County Medical Society and the state department of health will make free tuberculin tests and roentgen examinations on a limited number of children at the Illinois State Fair in Springfield, August 19-26. According to the state department of health, this project is undertaken as a demonstration of the use and value of the Mantoux skin test and the x-rays in the early diagnosis of tuberculosis. Children between 5 and 16 years old, whose parents or guardian request it, will be accepted for the test and examination. Children brought to the fair for the test will be provided with admission tickets to the grounds and asked to return two days later for a reading of the test. It is planned to roentgenograph immediately those with positive tests. It is to be emphasized particularly, the announcement states, that a positive test does not necessarily mean active tuberculosis. Physicians of the state are invited to send to the fair any of their patients whom they wish to have tested and examined.

INDIANA

Personal.—Dr. Richard Schillinger, Richmond, has replaced Dr. Louis F. Ross as medical superintendent of the Richmond State Hospital, it is reported.

Child Health Conferences.—Two hundred and seventy-six children were examined by members of the Shelby County Medical Society in a series of conferences conducted throughout the county, recently. The conferences revealed that less than 9 per cent of the children had been immunized against diphtheria and a smaller percentage had been vaccinated against smallpox. As a result, an active immunization campaign is planned in the county by committees of the medical society, the county tuberculosis association and the Red Cross, which were the cooperating agencies in the fourteen conferences. Lay committees handled the clerical work and graduate nurses donated their services at the conferences.

Program for Child Health.—In a news item concerning the work of the department of child health and maternal welfare of the Indiana State Board of Health published in THE JOURNAL, July 29, page 372, it should have been stated that this work is to be done through the organization of the Indiana State Medical Society, with approval and participation of the county medical societies. District chairmen appointed by Dr. Oscar N. Torian, chairman of child health, are to be key men in obtaining cooperation of the county societies in their districts. It is the purpose of the plan that each county society shall educate its own citizens in child health. According to officials of the state medical society, the plan goes into effect in any locality only on the request and with the approval of the local county medical society.

IOWA

Society News.—Dr. Walter C. Alvarez, Rochester, Minn., addressed the Black Hawk County Medical Society, June 8, on "The Doctor and His Family."——At a meeting of the Clinton County Medical Society, June 1, Dr. Franklin R. Peterson, Iowa City, spoke on "Diseases of the Spleen."——Dr. Andrew B. Rivers, Rochester, Minn., discussed "Causes of the Vomiting of Blood" before the Floyd County Medical Society in Charles City, recently.——The Johnson County Medical Society was addressed, June 7, by Drs. William F. Boiler, Iowa City, and Granville A. Bennett, Boston, on "Treatment of Acute Otitis Media" and "Degenerative Changes in Joints Resulting from Continued Trauma and Increasing Age, and Their Relationship to Hypertrophic Arthritis," respectively.——Veterinarians of the county presented a symposium on diseases transmitted by animals to man before the Mills County Medical Society in Glenwood, June 22.——Dr. Joseph B. Vanderveer, Philadelphia, talked on "The Electrocardiogram as an Aid to the Diagnosis and Treatment of Heart Affections" before the Scott County Medical Society in Davenport, June 6.——Dr. Andrew J. Smith, St. Joseph, Mo., conducted a skin clinic before the Taylor County Medical Society, recently, and Dr. Willard C. Proud, St. Joseph, spoke on "Conditions Affecting the Eye, Ear, Nose and Throat."——The sixtieth annual meeting of the Des Moines Valley Medical Society was held in Ottumwa, June 20. Speakers included Drs. Harry C. Willett, Des Moines, on "Lesions of the Lips," and George B. Crow, Burlington, "Heart Diseases."——The Southwest Iowa Postgraduate Medical Society was addressed in Red Oak, June 1, by Drs. Edwin Davis, Omaha, on "Advantages and Disadvantages of Transurethral Prostatic Resection as Compared with Prostatectomy," and Aldis A. Johnson, Council Bluffs, on "Mistakes in Diagnosis and Why We Make Them."——Dr. Frederick A. Willius, Rochester, Minn., was among the speakers at the summer meeting of the Upper Des Moines Medical Society at Lake Okoboji, June 29; his subject was "Carcinoma of the Urinary Bladder."

MICHIGAN

State Stops Distributing Some Products.—The state department of health, July 1, discontinued the distribution of bacteriophage as well as scarlet fever toxin for active immunization and the Dick test. The Kahn test will be available for state institutions and charitable organizations only. The restriction was necessary because of a marked reduction in the budget of the department. Other services and preparations will be continued as usual.

Dr. Peterson Retires from Active Practice.—Dr. Reuben Peterson, emeritus professor of obstetrics and gynecology, University of Michigan Medical School, Ann Arbor, retired from active practice on his seventy-first birthday, June 29. Dr. Peterson became associated with the medical school in 1901 as professor of obstetrics and gynecology, a position he filled until 1931, when he retired with the title of emeritus professor. He was medical director of the University of Michigan Hospital from 1911 to 1918. Early in his career he was connected with the Post-Graduate Medical School of Chicago, 1898-1901, as professor of gynecology, carrying a concurrent appointment as assistant professor of obstetrics and gynecology at Rush Medical College. He was medical adviser to the governor of Michigan from 1917 to 1919 and president of the Michigan State Medical Society in 1915 and of the Washtenaw County Medical Society in 1902. Dr. Peterson is the author of many articles on his specialty. At the recent annual session of the American Medical Association in Milwaukee, Dr. Peterson was made an honorary Fellow.

MINNESOTA

Court Vacates Charter of Medical Corporation.—Judge John W. Boerner filed an order, June 2, vacating the charter of the Pioneer Mutual Health and Benefit Insurance Company of Minnesota, which had been organized in St. Paul apparently for "maintaining a health service or insurance." So-called policies of insurance were issued whereby the holder and others would get medical, surgical and dental services for $1.50 a month by consulting physicians, surgeons and dentists employed by the company. The Minnesota State Board of Medical Examiners, believing the plan to be in violation of the law so far as the furnishing of medical and surgical services is concerned, instituted court proceedings.

MISSOURI

Personal.—Dr. Lawrence T. Post has been appointed head of the department of ophthalmology of Washington University School of Medicine, St. Louis, on a part time basis.——Dr. Benjamin A. Wilkes has resigned as superintendent of the Southeast Missouri Hospital, Cape Girardeau; he will be succeeded by Mr. T. J. McGinty.

Health Department Reorganized.—The St. Louis Health Department was recently reorganized to centralize and coordinate more closely the various services. All activities of the department, with the exception of secretarial service and popular health education, will be grouped under four sections: medical, dental and nursing; laboratory; food control, and sanitary sections. The medical, dental and nursing section includes services in communicable disease, tuberculosis, venereal disease, child hygiene, prenatal care, public health nursing, dentistry and health center clinics. Dr. Paul J. Zentay, St.

Louis, instructor in clinical pediatrics, Washington University School of Medicine, has been appointed in charge of this division. Other appointments include the following:

J. S. Koen, D.V.S., formerly chief meat inspector, to chief of food control section.
Mr. W. Scott Johnson, Jefferson City, chief sanitary engineer.
Dr. Alfred L. Kavanagh, chief of venereal clinic.
Ernest C. McCulloch, D.V.M., supervisor of milk control.

In addition to the coordination within the department, a closer cooperation with physicians in private practice and with the medical schools and health organizations is planned.

MONTANA

State Medical Election.—Dr. Byron L. Pampel, Livingston, was installed as president of the Medical Association of Montana at its annual meeting, July 11-13. Dr. Charles E. K. Vidal, Deer Lodge, was chosen president-elect, and Dr. William E. Long, Anaconda, named vice president. Dr. Elmer G. Balsam, Billings, was reelected secretary. The next annual session will be held in Helena, July 11-12, 1934.

NEW YORK

Society News.—Dr. Morris Fishbein, Chicago, editor of THE JOURNAL, addressed the summer meeting of the Medical Society of the County of Chautauqua, August 2, at Chautauqua Institution, on "Follies of Socialized Medicine." Dr. Marshall Clinton, Buffalo, addressed the society, June 21, on abdominal emergencies.——Drs. James R Goodall, Montreal, and Edward K. Cravener, Schenectady, addressed the Medical Society of the County of Franklin, Saranac Lake, June 9, on "Ovarian Dysfunction" and "Lumbar and Sacral Pain," respectively.

Health at Schenectady.—Telegraphic reports to the U. S. Department of Commerce from eighty-five cities with a population of 37 million, for the week ended July 22, indicated that the highest mortality rate (17.8) appeared for Schenectady and the rate for the group of cities as a whole, 9.5. The mortality rate for Schenectady for the corresponding period last year was 7 and for the group of cities, 10.8. The annual rate for eighty-five cities for the twenty-nine weeks of 1933 was 11.3, as against a rate of 11.8 for the corresponding period of the previous year. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas or have large Negro populations may tend to increase the death rate.

Begin Work on Saratoga Spa.—The ceremony of laying the cornerstone of the Hall of Springs, the first building in the program of development of Saratoga Springs as a state-owned spa, was held, July 12. Bernard M. Baruch, New York, who was chairman of the Saratoga Springs Commission which planned the present development, laid the cornerstone and Gov. Herbert H. Lehman made the principal address. The Hall of Springs will be 160 feet long and 70 feet wide, with a high arched roof enclosing three of the principal medicinal springs. Marble counters will surround the fountains, from which attendants will serve the water at prescribed temperatures. The group of buildings will finally include a sanatorium, bath houses, a bottling plant for the waters, a gymnasium and a new unit of the laboratory and administration building, all of which are to be finished by Jan. 1, 1936. Beginning of the work was made possible by a loan of $3,200,000 from the Reconstruction Finance Corporation in June.

New York City

Society News.—Bronx physicians whose names appeared in the list of approved radiologists published by the Council on Medical Education and Hospitals of the American Medical Association recently organized the Society of Approved Roentgenologists of Bronx County. The purposes of the organization were announced to be: to remove abuses connected with practice of the specialty, to strive for high scientific standards and to promote mutual cordiality among members and between them and the medical profession in general. Dr. Samuel F. Weitzner is president and Dr. Jacob Fierstein, secretary.

NORTH CAROLINA

Johnson Medical Building Completed at Wake Forest.—The William A. Johnson Memorial Medical Building at Wake Forest College School of Medicine, a gift of the family of Dr. Johnson, who was killed in an automobile accident in 1927, has been completed and turned over to the school. The new $60,000 structure is three stories high and contains adequate teaching and research facilities. Dr. Johnson received his academic degree at Wake Forest and after graduating from the University of Pennsylvania School of Medicine in 1925 returned to his alma mater as professor of anatomy, which position he occupied at the time of his death.

OKLAHOMA

Extension Course.—The extension division of the University of Oklahoma sponsored a course of weekly lectures at El Reno recently. Instructors and their subjects were:

Dr. Thomas P. Sprunt, Baltimore, Arterial Hypertension and Arteriosclerosis.
Dr. William S. Middleton, Madison, Wis., Diagnosis and Treatment of Lobar Pneumonia.
Dr. Neuton S. Stern, Memphis, Coronary Disease: Its Recognition and Management.
Dr. Paul L. Schroeder, Chicago, Mental Hygiene of Infancy and Childhood.
Dr. Henry F. Helmholz, Rochester, Minn., Diseases of the Urinary Tract in Childhood.
Dr. Peter T. Bohan, Kansas City, Use of Drugs in Heart Failure.
Dr. Horton R. Casparis, Nashville, Tenn., Infant Feeding.

PENNSYLVANIA

Society News.—Drs. Edward Weiss and Temple S. Fay, Philadelphia, addressed the Clearfield County Medical Society at a meeting at the Crystal Springs Rod and Gun Club, near Clearfield, July 13, on "Cardiac Neuroses" and "Surgical Treatment of Brain Injuries," respectively.——Dr. Ralph M. Tyson, Philadelphia, addressed the Luzerne County Medical Society's Hazleton branch, in June, on acute anterior poliomyelitis.——Dr. Truman G. Schnabel, Philadelphia, discussed treatment of anemias before the Northampton County Medical Society, Easton, June 16.

Philadelphia

Alvarenga Prize Awarded.—The College of Physicians of Philadelphia announces that the Alvarenga Prize, amounting to about $300, has been awarded to Drs. Harry Shay and Jacob Gershon-Cohen, Philadelphia, for their essay entitled "Experimental Studies in Gastric Physiology in Man." The authors of the winning essay are graduates of the University of Pennsylvania School of Medicine, Dr. Shay in the class of 1921 and Dr. Gershon-Cohen, the class of 1924. The former is a specialist in internal medicine and the latter in roentgenology. The Alvarenga Prize essay may be on any subject in medicine and must represent an addition to the knowledge and understanding of the subject based on either original or literary research. It was not awarded in 1932.

SOUTH DAKOTA

Cancer Campaign Planned.—At the recent annual meeting of the South Dakota State Medical Association the cancer committee of the association was authorized to engage in an educational campaign to further the diagnosis and treatment of cancer in cooperation with the American Society for the Control of Cancer. It was recommended that the facilities of all available educational agencies be concentrated for an initial period of one year on the subject of cancer of the breast. Members of the cancer committee are Drs. William R. Ball, Mitchell; Jesse D. Whiteside, Aberdeen, and Nelius J. Nessa, Sioux Falls.

TEXAS

Personal.—Dr. John H. Foster, Houston, president of the State Medical Association of Texas for 1932-1933, received the honorary degree of doctor of science at the June commencement of Southwestern University, Georgetown, his alma mater.

Society News.—At a meeting of the Brooks-Duval-Jim Wells Counties Medical Society in Alice, June 21, Dr. Carroll F. Crain discussed roentgen diagnosis of diseases of the chest and Dr. Charles W. Skipper, Corpus Christi, syphilis.——Drs. Wilson D. Anderson, Sanatorium, and Clifford T. Womack, San Angelo, among others, addressed the Mason-Menard-McCulloch Counties Medical Society in Brady, June 7, on "Phrenic Resection in Treatment of Pulmonary Tuberculosis" and "Spinal Anesthesia," respectively.——Speakers at the June meeting of the Dallas County Medical Society were Drs. Paul H. Duff, on treatment of empyema; Richard L. Nelson, lead poisoning in children, and Elza M. Perry, Dallas, polyneuritis and vitamin deficiency.——Drs. Milford O. Rouse and Thomas H. Cheavens, Dallas, addressed the Henderson County Medical Society, June 5, on treatment of peptic ulcers and syphilis of the nervous system, respectively.——Dr. Newton H. Bowman, Mercedes, among others, addressed the Hidalgo County Medical Society, Edinburg, June 8, on diagnosis of ocular paralysis.——Dr. Cleve C. Nash, Dallas, presented a paper on "Injuries of the Head and Their Treatment" before the Denton County Medical Society, Denton, June 8.——Dr. Wilmer L. Allison, Fort Worth, was among the speakers at a meeting of Tarrant County Medical Society, Fort Worth, June 5, on "Newer Theories Regarding the Cause and Treatment of Epilepsy."

WASHINGTON

Personal. — Dr. Albert E. Stuht, director of the State Department of Health, Seattle, for the past eight years, has been appointed surgeon of the American Mail Line. —— Dr. Marinus W. Conway, Cheney, has been appointed superintendent of Eastern State Hospital for the Insane at Medical Lake.——Dr. Leslie A. White, Seattle, has recently gone to Metlakatla, Alaska, to take charge of the medical service of an Indian station.——Dr. Roger L. Hickman has resigned from the Yakima Indian Sanatorium, Toppenish, to become associated with the Western Oklahoma Tuberculosis Sanatorium, Clinton.——Dr. Paul L. West, Wenatchee, has resigned as health officer of Chelan County after nine years' service.

WEST VIRGINIA

Child Health Conference. — Dr. Moritz F. Petersen, Charleston, was appointed chairman of a continuation committee following the state conference on child health and protection held in Charleston in May. West Virginia was the twenty-eighth state to hold such a conference along the lines of the White House Conference held in Washington in 1930. The continuation committee will seek a plan whereby the work of child welfare organizations in the state can be coordinated. Dr. George M. Lyon, Huntington, organized the conference. Among physicians who took part were Drs. Delivan A. MacGregor, Wheeling, president of the West Virginia State Medical Association; David Littlejohn, Charleston, then acting state health officer; Robert C. Hood, Clarksburg; John T. Thornton, Wheeling, and William Byrd Hunter, Huntington.

GENERAL

Change in Status of Licensure.—The Rhode Island Public Health Commission has reported the following revocation:

Dr. John B. Coffey, Providence, license revoked in February under the state narcotic law. He is at present serving a term in the Providence County jail on conviction of failure to keep records of drugs dispensed. This license had previously been revoked, but an appeal to the supreme court which had never been heard prevented the revocation from becoming effective.

Woman's Journal Enlarges Scope.—With its June issue the *Medical Woman's Journal* broadened its activities to include the work of women in allied scientific fields and adopted the name *Medical and Professional Woman's Journal*. Interests of dietitians, dentists and women in public health work are presented in special departments. There will also be a department of medical jurisprudence.

Prizes for Research on Mental Disease.—The Eugenics Research Association, Cold Spring Harbor, N. Y., is offering a prize of $3,000 and another of $1,000 for original research on the inheritance of mental disorders. Only white persons are to be studied, and family history of about 100 years should be considered. Two years will be allowed for the research; typewritten reports are to be submitted to the association on or before July 1, 1935. The announcement emphasizes that the probability of commitment to an institution is the criterion on which the research must hinge.

Study Public Health Problems in Europe.—Two health officers are members of a party of municipal executives from various American cities who will spend six weeks in Germany and Austria studying public health conditions and problems, it is reported. The physicians are Drs. John L. Rice, health officer of New Haven, Conn., and George C. Ruhland, health officer of Syracuse, N. Y. The party includes a mayor, a city manager, a police chief, a city engineer, a park executive and other municipal executives. The trip has been made possible by the Carl Schurz Foundation of the Oberlaender Trust, a Philadelphia organization established for the promotion of cultural relations between the United States and German speaking countries.

Society News.—Dr. Agnew H. Hilsman, Albany, Ga., was elected president of the Chattahoochee Valley Medical and Surgical Association at its annual meeting in Albany, July 12, succeeding Dr. Seale Harris, Birmingham, Ala. Dr. William J. Love, Opelika, Ala., was reelected secretary.——A resolution requesting the U. S. Public Health Service to take measures to prevent introduction of psittacine birds into the United States was adopted by the western branch of the American Public Health Association at its annual meeting in Pasadena recently. The resolution declared that the appearance of psittacosis in California and other Western states had established a distinct menace to public health and urged continuance of the investigations of the disease which have been under way in California for the past year.——Dr. Jean P. Pratt, Detroit, was elected president of the Association for the Study of Internal Secretion at its annual meeting, June 13, and Dr. Francis M. Pottenger, Los Angeles, reelected secretary. The next annual session will be held in Cleveland.——At the annual meeting of the Medical Library Association, June 19, Miss Marcia C. Noyes, Baltimore, was elected president, and Miss Marjorie J. Darrach, Detroit, reelected secretary. The next annual session will be held in Baltimore.——The annual meeting of the Association of Military Surgeons will be held in Chicago, September 25-27, under the presidency of Dr. Ralph C. Williams, Washington, D. C.——Dr. George A. Dowling, Seattle, was named president-elect of the Pacific Northwest Medical Association at the annual meeting in Vancouver, B. C., in July. The 1934 session will be held in Salt Lake City.

Funds Needed — Anatomy of Lung. — Dr. Lawrason Brown, Saranac Lake, N. Y., is sending to interested physicians a letter asking for contributions to a fund to finance the publication of the work of Dr. William Snow Miller, Madison, Wis., on the anatomy of the lung. Dr. Miller has much of the material, including a number of plates, Dr. Brown's letter says, but he requires about $3,000 to enable him to get the manuscript ready for the publishers by Jan. 1, 1934. This sum would be spent as follows: $2,500 for the services of a secretary and an artist and $500 for Dr. Miller's living expenses. Because of financial reverses Dr. Miller, now 76 years old, is unable to do this work without outside aid. Dr. Brown's letter concludes:

I was impressed with the opportunity which presented itself to American medicine, for here almost within our grasp lay what we might consider to be a classic. It is for this reason that I am writing to ask your immediate aid in the form of a small contribution and possibly a few others from some of your friends and acquaintances. The appeal is urgent. Father Time is no laggard. I shall be glad to act as treasurer of the fund.

Dr. Brown's address is 24 Church Street, Saranac Lake, N. Y.

FOREIGN

New Medical Buildings.—Kings College Hospital Medical School, London, recently opened several new buildings, completing a program interrupted by the World War. They include a teaching museum, a dental museum, a biochemical research laboratory, and a refectory hall provided with a stage which will make it adaptable for meetings and school ceremonies.

Society News.—The Medical Association of South Africa will hold its annual meeting at the University of Capetown, Groote Schnur, September 25-30. Dr. Edward Barnard Fuller is president. Three morning plenary sessions will be held at which discussions will be held on "Diet in Relation to Health in South Africa," "Maternal Mortality in Urban and Rural Areas" and "Medicolegal Problems of General Practice." Alternate mornings will be given over to section meetings and the afternoons to business meetings, a golf tournament and special excursions. The president's garden party will follow the annual business meeting the third day of the meeting.——The directorate of the German Physiologic Society has decided to cancel the session that was to have been held in Innsbruck in September.

International Congress on Cancer. — An International Congress for the Scientific and Social Fight Against Cancer will be held in Madrid, October 25-30. Subjects to be discussed by the scientific section are: biology of the cancer cell, early diagnosis, treatment of cancer and tumors of the nervous system. Subjects for the social section are: occupational cancer, statistics of cancer, organization of a permanent international bureau and public education against cancer. Official languages of the congress are English, French, Spanish, German and Italian. Further information may be obtained from Dr. Julio Bejarano, general secretary, Atocha 104, Madrid. Newspapers report that Drs. James Ewing, New York, and Francis C. Grant, Philadelphia, have been appointed delegates to represent the United States.

Memorial to William Harvey.—The tower of Hempstead Church, Essex, where William Harvey and members of his family are buried, is to be partially restored after lying in ruins for fifty years, the *British Medical Journal* reports. Lord Dawson of Penn, president of the Royal College of Physicians, laid the foundation stone, July 7, for the new tower, which will be known as Harvey Tower. In 1882 the church tower fell suddenly and the damage has never been repaired. The College of Physicians in 1883, feeling that the remains of Harvey should be more fittingly cared for, removed the leaden shell containing his body from the Harvey vault, which had fallen into disrepair, and placed it in a marble sarcophagus in the Harvey chapel, a part of the church originally built by members of the family. Within the last few years a committee of representatives of the medical profession and the parishioners of Hempstead has raised sufficient funds to finance rebuilding of part of the tower. It remains to find funds for the restoration of the ringing room and the belfry.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 15, 1933.

Cancer Research

Years ago it was discovered that shale workers in the Scottish coal fields developed warts on their hands, which tended to become cancerous. In the research department of the Cancer Hospital, London, the cancer-producing substances of shale, tar and paraffin were investigated and the work has now been brought to a successful conclusion. Mr. Hieger, a member of the staff, has succeeded in isolating from coal tar a cancer-producing body of great virulence and, moreover, has prepared this body synthetically. It is a hitherto unknown hydrocarbon; namely, 1:2 benzopyrene. Five benzene rings are united in the molecule in a particular manner. This substance is to be distinguished from another cancer-producing substance prepared synthetically at the Cancer Hospital some time ago (1:2:5:6 dibenzanthracene). Work is now proceeding on the possible relation of these substances to compounds that occur in the tissues of the body. Light on the subject is being sought by means of x-ray crystallography. Working at the Royal Institution, Dr. J. M. Robertson has shown that dibenzanthracene differs from anthracene, which is not cancer producing, in ways that were not otherwise apparent.

At the Cancer Research Laboratory of the London Hospital, Dr. Lumsden, the honorary director, has made therapeutic researches. In 1925 it was first shown that antiserums capable of destroying cancer cells could be produced. The first attempts to cure an animal by injecting antiserum failed, but by 1932 it could be reported that mice were cured in a large percentage of cases. These mice were in future immune to experimental cancer. Some of them are now living and have been free from recurrences for nearly a year; i. e., a period equivalent to something like thirty or forty years in the life of a man. The results, gradually but progressively attained, all confirming the hypothesis on which ten years ago the research was based, have led at last to the final test on man. Twenty-five patients suffering from cancer in a hopeless form have voluntarily placed themselves under antiserum treatment. It is not considered expedient at this early stage to publish even the provisional conclusions. But the results are considered to justify further and intensive investigation along these lines, and the Cancer Campaign has provided the necessary funds. The annual report of the British Empire Cancer Campaign describes this research.

The Profession's Control in a State Medical Service

Mr. Somerville Hastings, a laryngologist, delivered his presidential address to the Socialist Medical Association on the extent to which physicians should be heard in the administration of a state medical service. He referred to the fact that for many years the state and the local authorities had been undertaking to supply the medical needs of part of the population. To what extent ought the physicians, who were whole or part time government servants, to have a controlling voice in the services they were administering? Mr. Hastings referred to the recent dispute between the London County Council and the British Medical Association concerning the conditions of service of the consultants about to be employed. The association claimed that it should have been consulted about the condition and have some voice in the selection. Much of the medical work of the Council was carried out by committees composed of medical officers of their hospitals and other services who issued reports to the health officer of the council. He transmitted these, with any modification he thought necessary, to the public health committee. The system seemed to work well in practice, but it was open to the theoretical objection that the only official communication was through the very narrow bottle-neck of the health officer. In the voluntary hospitals the most diverse conditions were found. Some of the smaller voluntary hospitals were completely controlled by the medical staff. On the other hand, in some of the larger hospitals the staff had no control whatever. In some they had representatives on the committee of management.

Mr. Hastings enunciated principles as to the amount of control to be given to workers in a state medical service: 1. They must have the sole voice in determining the type of treatment for each patient. 2. The public authority employing a medical officer must have the sole voice in his appointment. But a physicians' union should keep careful watch on salaries, hours and other conditions of employment and consult with the public body responsible. 3. The physicians employed or their representatives must have direct access to those administering the medical service. 4. They must have power to tender advice as to the development of the service.

Scottish Vital Statistics

Like England, Scotland continues to record a constantly falling birth rate. The report for 1932, just published, shows that the birth rate was 18.6 per thousand, again the lowest on record. The death rate was 13.5, compared with 13.26 in 1931. Infant mortality was 86 per thousand births, compared with 82 in 1931 and an average of 85 for the previous five years. But the tuberculosis death rate reached a record low figure of 84 per hundred thousand of population, compared with 87 in 1931. The birth rate now is only approximately half the maximum recorded (35.62 in 1876). In a discussion of the causes of the decline, it is pointed out that it cannot be explained by diminution of the marriage rate or increase of the average age on marriage. The average age on marriage from 1861 to 1901 shows little variation—from 27.2 to 27.5 years. Since 1901 there has been a slight tendency to increase, the average age in 1930 being 27.8 years. The decline in the birth rate started in 1876, while the tendency to increase in age at marriage is much more recent. Moreover, the married population at the censuses of 1901, 1911 and 1921 were, as regards age, more favorably constituted for a high birth rate than in 1885.

Lack of Milk a Cause of Tuberculosis

The Tyneside towns of Jarrow and Blaydon have each a working class population of about 32,000 and show an equal amount of overcrowding, but the tuberculosis death rate for the former is about 2 per thousand and for the latter about 1 per thousand. The National Association for the Prevention of Tuberculosis therefore investigated the matter. It was found that there were more poor families in Jarrow than in Blaydon. In the latter there are many married miners living in houses provided by the colliery owners, which are rent free—a great advantage during unemployment. The association of poverty with tuberculosis was thus manifested. In keeping with this, it was found that undernutrition was greatest in the tuberculous families. They consumed more bread but less meat, butter and milk than nontuberculous families. The shortage of milk in the diet was even greater than that of meat. It was suggested that the shortage of milk was possibly more important than undernourishment and that vitamins, enzymes or some unknown constituents of fresh milk played a part in the body's defense against tuberculosis. A racial factor entered into the etiology, for the incidence of tuberculosis was higher among the large Irish population in Jarrow. This higher rate could not be

entirely explained by inferior conditions of life. It was estimated that they made the death rate 31 per cent higher than it would have been in their absence. The practical conclusion was that the use of fresh milk, especially for children, should be regarded as a daily necessity in poor families. The neglect of milk was not simply a matter of poverty, for its use was more neglected than that of meat, though that is more expensive.

Council of the British Medical Association Condemns Dichotomy

At a meeting of the council of the British Medical Association, the following resolution was proposed, for the Central Ethical Committee, as a recommendation for the representative body: "That in the opinion of the representative body the practice of fee splitting, commonly called dichotomy, an arrangement between two practitioners whereby, unknown to the patient, one practitioner receives part of the fee due to the other, is really a secret commission, unlawful and highly detrimental to the honor of the medical profession." The subject originated in an anonymous letter to the *Lancet,* in which a consultant complained that he was forced by physicians to submit to the practice of dichotomy. An editorial followed in the *British Medical Journal* dissociating the profession from any countenance of the practice. Then the president of the General Medical Council condemned it as a contravention of an act of parliament which made secret commissions illegal. The council of the British Medical Association agreed to the recommendation, with omission of the reference to the illegality of a secret commission.

PARIS

(From Our Regular Correspondent)

June 14, 1933.

The Treatment of Accidental Asphyxiation

The city of Paris has a well organized fire department. Calls may be turned in from private telephones or from any one of the many special boxes located in the streets. These street boxes are now to be used also in summoning aid from a new service created to aid persons who have become accidentally asphyxiated by carbon monoxide, electrical shock, hanging and submersion; that is, persons discovered apparently dead, except cases resulting from disease or traumatism. In response to such calls, an ambulance is sent out with special equipment and one or two members of the special service of the prefecture of police, trained in the treatment of asphyxiation: artificial respiration by the Schäfer method; use of the inhalator mask, with a pouch containing oxygen and a 5 per cent admixture of carbon dioxide; and, finally, the vehicle to transport the victim to a hospital in case first aid should not prove sufficient.

The organization of this service is due to Lieutenant-Colonel Cot, M.D., who resigned from the army to become the director of this municipal service. His military career had brought him to Paris as chief physician of the fire department. The firemen are often exposed to asphyxiation in the basements of burning buildings. Dr. Cot improved the masks with which the firemen were equipped and studied the developments in the technic of resuscitation, visiting institutions in France and foreign countries. He introduced the use of the Henderson gas mixture and the mask, replacing the pure oxygen administered with the aid of a balloon and a rubber tube. He formed classes in the technic of resuscitation for the benefit of the firemen and policemen. The work of the pupils of Dr. Cot, confined to first aid, has led to saving the lives of more than 500 victims in the past two years. The municipalities near Paris are beginning to imitate this example, and twenty of them have organized for their police force a course of instruction. If, however, the case is grave, the intervention of the physician becomes necessary. Dr. Cot has published, for the use of physicians, a number of important brochures in which he discusses the best forms of technic.

The Effect of Tobacco on the Heart

Laubry, Deglaude and Walser have taken up again experimentally the old question of the effects of tobacco on the heart, studying them on an isolated heart of a rabbit. This research shows that the output of the heart varies directly with the output of the coronary arterial system. An infusion of tobacco and a solution of nicotine, if they contain the same amount of nicotine, exert the same effects on the coronary output. Small doses of nicotine provoke constantly an increase of the coronary output (from 30 to 60 per cent of the initial figure). Moderate doses of nicotine provoke a constant augmentation of the coronary output (from 5 to 20 per cent of the initial figure). Strong doses of nicotine provoke in a constant manner a diminution of the coronary output (from 10 to 20 per cent of the initial figure). Nicotine exerts, therefore, experimentally a strong vasodilative action in weak doses and a weak vasoconstrictive action in strong doses. An approximate calculation showed the authors that the probable concentrations of nicotine in the blood of ordinary smokers (from ten to twenty cigarets a day) correspond to the weak and moderate doses of their experiments. If it is permissible to apply these experimental data to the clinical aspects, it would seem that, in the mechanism of the attacks of angina associated with tobacco intoxication, the influence of the coronary vasoconstrictive factor is nil or negligible, whereas the toxic action on the nerve elements of the cardiac plexus is paramount. The evils of tobaccoism must therefore be associated with chronic intoxication of the autonomic cardiac motor system. The vascular spasms are plainly evident; their influence on the retinal circulation is likewise observed. But their effect on arterial pressure and on the myocardium is slight. The physician can therefore assume a tolerant attitude toward the moderate use of tobacco in persons who experience no inconvenience from it.

Erythemas Due to Medicines

Mr. Milian, of the dermatologic services in the Hôpital St. Louis in Paris, has reported his comprehensive research on erythemas due to medicines. These erythemas should not be attributed, as they usually are, to an intoxication, because they do not produce phenomena characteristic of intoxications (vasomotor disorders, edemas and the like); these are infectious erythemas brought out by the medicament. They are scarlatiniform, morbilliform or rubeoliform, and in each variety, from the ninth day on, there develop febrile and functional symptoms analogous to the eruptive disease of which it is the type. Thus, in scarlatiniform erythema one observes sore throat, headache, vomiting and a temperature of 40 C. (104 F.); in morbilliform erythema one notes conjunctivitis and the like. On the ninth day, independent of the erythemas, there may appear other infectious manifestations: sore throat, coryza, acute articular rheumatism and the like. These erythemas are therefore only attenuated eruptive fevers, developing in persons with latent micro-organisms, half, or at least partially, immunized. When they appear in the immediate vicinity of persons who are not immune—infants, for example—they may infect them with measles or scarlet fever.

Refusal of Students to Take a New Examination

A ministerial decree issued eighteen months ago, on the advice of the superior council of public instruction, provided for a new examination at the end of the second year in medical school, the examination to comprise a written composition on anatomy and physiology. The superior council had acted in response to a desire of the medical syndicates to see the studies for the degree of doctor of medicine made more

difficult, in order to diminish the number of physicians. A written composition would make it possible to avoid favoritism on the part of examiners. The ministry did not announce the introduction of the new examination until two months before the date set for the test. The delayed notice caused excitement among the students of Paris, and they decided to refuse to present themselves for examination. The students of Montpellier, Nancy, Strasbourg and other universities imitated their example. Their principal complaint was that the new rules should be applied only to the new students and not to those who had begun their studies under previous requirements. The minister would not relent and a number of deputies intervened before the tribunal of parliament in order to question the minister and to ask his indulgence for the culprits. The minister finally consented to postpone the examination until next October. The excitement among the students has not been allayed. They are convinced that the project contemplates adding a sixth year to their studies. The minister finds himself in an embarrassing position.

BERLIN

(From Our Regular Correspondent)

June 26, 1933.

Changes in Management of Medical Profession

The Aerztevereinsbund, a syndicate of the medical profession which controlled the professional policies, and the Hartmannbund, a syndicate which dictated the economic policies, were until recently under the sole direction of Geheimer Sanitätsrat Dr. Stauder in Nuremberg. After the Aerztevereinsbund had opposed, a few months previously, bringing the medical profession under political influence, and after stormy altercations between the syndicates and the physicians associated with the national-socialist party, the latter and these two syndicates finally divided the administrative offices between them. The duties of chairman were then performed jointly by the chairman of the national-socialist physicians, Dr. Wagner of Munich, and by Dr. Stauder. Physicians who had become dissatisfied with Stauder's attitude have been desiring his resignation, but nothing happened until recently, when suddenly he announced his determination to resign. The new political developments, Stauder states, have prepared the way for a unified organization. He said it was a mistake to continue longer the duumvirate—on the one hand the interjected commissar Dr. Wagner, who enjoys the confidence of the federal government, and, on the other hand, the regular chairman, who is bound by law and the constitutions of the leagues and is responsible for all transactions of a legal or financial nature. Dr. Wagner will now be the sole occupant of the office of chairman until the new election is held. His position has been approved by the government. Whether the Aerztetag, the annual convention of these two leagues, which was postponed a few months ago, will be held at all, this year, is doubtful.

Eugenic Sterilization

In a recent letter it was mentioned that the attitude of representatives of the medical profession toward eugenic sterilization has undergone a change. In the meantime, the new government has issued a public statement. The Prussian minister of the interior has announced that the council on health has drawn up a bill as the basis for deliberations throughout the reich. Sterilization for medical reasons is already permitted. The new bill concerns sterilization for eugenic reasons but not for social reasons. According to statements issued by the ministry, it is possible that this law will go beyond voluntary sterilization. It is a question whether a physician can be required to sterilize a human being who is opposed to such a procedure. Some contend that the eugenic purification of the body politic through sterilization is the work of generations.

Professor Muckermann, director of the department of eugenics at the Kaiser Wilhelm-Institut für Anthropologie in Berlin-Dahlem, has issued a warning against pursuing too radical a course. In promoting differentiated propagation, one must distinguish the families with sound hereditary qualities from those with unsound qualities. If one should try to eliminate every German family with hereditary taints, one would sound the death knell of the German people. Therefore, experts must be called to make most thorough research in order that only such elements may be excluded from propagation as are unable to propagate other than degenerate progeny. Furthermore, it is important that families with sound hereditary qualities be given financial aid to support large families of children (for example, by remission of taxes and a special tax on bachelors, which has already been introduced in Germany). Muckermann warned against the illusion that all measures proposed would bring rapid results. It is too much to expect that eugenic bureaus will function ideally in a few months.

Professor Fetscher of Dresden, director of a marriage consultation center, found that, during the period 1929-1933, sterilization was indicated in eighty-eight cases; but in only sixty-five cases was he able to bring it about. He cited a family in which five out of eight children were idiots. They have cost the community thus far more than 58,000 marks ($13,804). In contrast, there have been men or women who have requested sterilization for unjustified reasons. They have been refused.

Vital Statistics of German Cities

The disturbances caused by the economic condition showed signs of subsidence in 1932. The cataclysmic decrease in the marriage rate was checked. The decline in the birth rate underwent a 50 per cent reduction during the second half of the year. The migratory movement continued to subside, the number of removals decreasing more rapidly than the immigrations. In the large cities as a whole, the number of marriages was somewhat smaller than the previous year, but in the cities with from 15,000 to 100,000 inhabitants, marriages showed an increase. Also the birth rate declined only in the large cities. The greatest decline in the birth rate was shown, in recent years, by the industrial cities of Upper Silesia and of Rhineland and Westphalia; after them came Berlin and the Saxon cities Dresden and Plauen. The mortality kept along the low level of the two previous years, the effects of the doubtless often inadequate diet being evidently compensated for by other favorable factors. The increase in population showed a considerable decline as a result of the reduced birth rate. The communes with more than 15,000 inhabitants had an excess of births over deaths amounting to 48,000, or 1.6 per thousand, as against 2.1 and 3.7, respectively, for the previous two years. The greatest losses were recorded of course in the large cities, eleven of which registered more deaths than births. Net losses from emigration exceeding those of the previous year were recorded only by Berlin and Hamburg.

It is evident from the report in the *Reichs-Gesundheitsblatt* that the number of suicides increased. There was a decrease in fatal accidents; also in the number of deaths due to infectious diseases, to childbed fever and to infant mortality from convulsions and syphilis. The diseases of advanced age—cancer, heart disease, cerebral hemorrhage and senile weakness—came more to the front and accounted for more than 42 per cent of all deaths.

Outbreak of Scabies

According to an announcement of the Prussian ministry of the interior, scabies shows a greatly increased incidence, in some parts of the country, among ramblers and persons without permanent abode. A vigorous campaign to combat the spread of the disease should be undertaken. The campaign of enlightenment in the shelters is imperative. To avoid the cost of hospitalization, treatment, so far as possible, should be given

in the shelters after a diagnosis has been made by the local physician of the poor.

Hans Prinzhorn's Death

The unexpected death of Hans Prinzhorn, in Munich, at the age of 47, has been announced. His death marks the passing of one of the most interesting figures of this generation. He devoted himself to the history of art and later turned his attention to psychology and psychiatry. His chief work, "Bildnerei der Geisteskranken" (sculptures of psychopaths), was followed by a second, "Bildnerei der Gefangenen" (sculptures of prisoners). Prinzhorn taught for a time as a "guest instructor" at a university in southern California.

TURKEY

(From Our Regular Correspondent)

Ankara, June 15, 1933.

The Government Monopoly of Narcotics

The narcotic law, promulgated June 6, makes the manufacture of preparations from crude opium, opium salts, ethers and extracts, morphine and its salts and crude cocaine and its salts, and the import and export of specialties containing such constituents a government monopoly. The monopoly of drugs and narcotics has been established as a part of the ministry of national economy. The new law has twenty articles, the most important of which are as follows:

The monopoly is to attend to all affairs pertaining to the purchase and sale of opium and to engage in all enterprises in connection therewith, to analyze all prospective purchases, to combine the different grades, reclassify them, insure the standardization of opium, organize an administrative center and establish a laboratory, and fix prices. The administration is to indicate the areas set aside for opium cultivation and by advertisements in the press bring to the attention of the public the areas where the cultivation is unlawful. To make sure that aldermen have this information, they are to sign a statement to that effect. Supervision of the opium areas is the responsibility of the civil authorities. The manufacture of preparations under this law is to be carried out at the one laboratory the monopoly will establish and administer in Ankara. Laboratories now manufacturing such preparations are to function no longer. The ministry of national economy, in cooperation with the ministry of health, fixes the regulations on the administration of the laboratory, the kinds of preparations made, their amounts, and the supervision of the sales. Exportation of these preparations is to take place from the Istanbul and Izmir customs. The monopoly will have a board of five trustees, who will serve a term of two years and may be reelected. The monopoly headquarters are located in Istanbul. The ministry of national economy may decide to establish branches in other parts of the country or abroad. Persons growing opium in an unlawful area are to be fined from 5 to 100 pounds and their plantations are to be destroyed or the harvest confiscated. Persons who smuggle crude opium into another country are imprisoned from one to three years and besides are fined three times the value of the opium smuggled. Persons who at the date of the promulgation of this law have a stock of crude opium of the former harvest must within fifteen days make a declaration to the civil authority.

The Reorganization of Istanbul University

The long contemplated reorganization of the Istanbul university is being set in motion by the new minister of education, Dr. Reshid Galib. A temporary faculty is to be appointed for one year. The appointment of the permanent faculty is to take place, May 31, 1934. The recommendations of Professor Malche of Geneva University, who at the invitation of the government made a survey of the situation last year, will be carried out. The most revolutionary are those in connection with the medical school. With the establishment of the university twenty-five years ago, the medical school established by Sultan Mahmoud II in 1827 became a part of it. Originally the medical school was located in old Istanbul on the European side, but thirty years ago the sultan removed the medical school to Haidar Pasha on the Asiatic shore of the Marmora, then an isolated location. Among the most important of Professor Malche's recommendations was that the medical school be transferred to Istanbul, because of the limited number of hospital beds at the Haidar Pasha clinics. In Istanbul, the psychopathic hospital has 1,480 beds. At the Haidar Pasha clinic, the maximum number is 350. It is possible also to put aside for teaching 800 beds at the Istanbul hospitals. The dormitories are located in Istanbul and the 370 students lose much valuable time in commuting, not to speak of the expense involved. This transfer marks the beginning of the Istanbul university center. Professors who have reached the age limit are going to be retired. Faculty members who have no publications to their credit or those who have no wide knowledge of two modern languages have no chance for reappointment. It is probable that Professor Malche will be offered the presidency of the university and that a number of authorities from abroad will be invited to accept chairs. A committee on publications and translations from among former members of the faculty who are not given a position in the new organization is to be appointed. Professor Malche considers that the publications hitherto in use, either original or translations, have been insufficient.

BUCHAREST

(From Our Regular Correspondent)

June 18, 1933.

Iodized Eggs

One of the latest dietetic fads is the consumption of iodized eggs in cases of secondary and tertiary syphilis, arteriosclerosis, exophthalmic goiter and other maladies in which iodine is indicated. The eggs are produced in special poultry farms under scrupulous hygienic conditions, the animals being periodically subjected to blood tests and other examinations. The hens are given foods that contain a great quantity of iodine, and their drinking water amounts to a weak iodine solution. An analysis of these eggs made at the chemical analytic laboratories in Bucharest revealed that they contain about 6.75 mg. of iodine per hundred grams, while ordinary eggs contain only 0.012 mg. The iodine in the eggs is in the organic form. A disadvantage of the eggs is their repulsive taste, and patients tire of them. There are in Austria two, in Hungary three and in Rumania two special poultry farms where iodized eggs are produced.

The Prevention of Uterine Cancer

Dr. Crainicianu, gynecologist to the Bucharest university clinic, states that 156 cases of uterine cancer were under treatment from 1921 to 1931 and that 68 per cent of these were found on the borderline of operability. The majority of the patients were between 30 and 40 years of age. Uterine cancer represented 7.25 per cent of the total number of gynecologic patients at the clinic. Crainicianu believes that the cause of this situation, in part, is the slow evolution of the disease, as well as the incompetence of midwives, who in the rural parts of Rumania first see these women. However, the chief cause of the frightful spread of cancer is the utter ignorance of this disease among the general public.

As regards prophylaxis, Crainicianu suggests systematic biopsies; also the treatment of precancerous diseases. Much more important is public education by means of lectures, moving pictures and newspaper articles. Women should subject themselves to thorough gynecologic examination twice yearly

To this end he is going to make an appeal to the government to erect gynecologic advisory centers under the leadership of competent gynecologists. He also urges government regulation of the midwives, most of whom carry on quackery and do abortions.

Marriage and Syphilis

Dr. Aurel Voina of the University of Bucharest lectured at a recent meeting of the Rumanian Medical Society on the necessity of changing the time limit within which syphilitic patients are forbidden to marry. He argued that the unjustified length of time during which they must remain single is harmful to the individual and to the state. Fournier, whose centenary will be celebrated next year, favored the unduly long term of five or six years. Gaucher, late professor of syphilology at the Faculté de médecine of Paris, asserted that a syphilitic man can never be considered completely cured from the point of view of procreation. It must be remembered that the energetic antisyphilitic treatment administered in recent years has shortened the duration of infectivity. The drugs administered at present are much more efficacious than those administered a score of years ago. For this reason, it is unjust to demand abstinence from marriage for five or six years. A bachelor, in comparison with a married syphilitic man, is a disease carrier and therefore a social menace. These circumstances point to the fact that in the interest of social hygiene the point of view of the medical profession regarding permission for persons with syphilis to marry should be revised.

Cutaneous Mycoses in School Children

Cutaneous mycoses form, at present, between 15 and 20 per cent of all skin diseases encountered in the school children of Rumania. The great extension of the trichophyton epidemics in the schools is mainly due to the regrettable fact that the school physicians have no microscopes and that they do not send the children to well equipped laboratories for a microscopic analysis in all early cases. In Rumania, Dr. Theodorescu said that the first microsporia epidemic was in 1925, in a Bucharest children's asylum. In all cases of cutaneous mycosis it is necessary to isolate the patients. To save the children from missing school too long because of the protracted treatment, some authorities suggest establishing special school classes for the sick children. Roentgen treatment is best for mycoses if done by competent radiologists.

BELGRADE

(From Our Regular Correspondent)

July 3, 1933.

The New Law Concerning Venereal Disease

Up to the present there has been no compulsory medical examination before marriage, except when either the bride or bridegroom requested it. Brothels existed also in nearly every town in the country. A new law has been drafted in parliament forbidding brothels and imposing a compulsory medical examination for venereal diseases before marriage. The main points of this new law are as follows:

Venereal diseases are considered to be syphilis, gonorrheal infections and soft chancre in any part of the human body. Persons suffering from venereal disease must undergo treatment; they are examined and treated free of charge in state hospitals and ambulances, and also in university medical clinics and similar institutions.

Every physician treating a patient with venereal disease is required to inform him of its infectious character and that he is obliged to undergo treatment, and to warn him that the law will hold him responsible if he communicates his disease to a healthy person. The physician must warn him not to marry as long as he is not cured. The physician must inquire as to the source of the infection and communicate this information to the authorities, who will verify it and undertake adequate measures. The physician must keep records of the patients he treats and give all necessary information to authorities if requested to do so officially. If the patient stops treatment before he is cured, the treating physician is obliged to notify the authorities. If there is danger of the patient communicating his venereal disease to another person, he must be discreetly sent to a hospital and there treated until cured.

The Ministry of Public Health must widely propagandize venereal disease, especially among schoolchildren, students, and in the military forces. The heads of hospitals and ambulances for venereal diseases must be active in instructing the population. The keeping of brothels is against the law.

Every person about to be married must produce a medical certificate issued by a state physician that he is free from venereal disease. Priests and other officials who conduct a marriage cannot do so if either the bride or the bridegroom does not have an official medical certificate. If they permit the marriage without such a certificate, they will be punished.

It is forbidden to give any treatment for venereal disease without an examination of the patient; it is also forbidden to give advice by correspondence, to send medicaments or to advertise medicaments for the treatment of venereal disease verbally, through the press, or in any similar manner.

Anybody communicating a venereal disease to another person in any way will be punished by law. If a syphilitic woman undertakes to nurse a healthy baby and communicates the disease to it, she will be punished; equally parents who, knowing that their baby is syphilitic, infect in such manner a healthy nurse will be punished.

The Ministry of Public Health shall open special institutions —aided especially by the women's organizations for girls whose morals are threatened, and for those who have been punished for prostitution, in order to enable them to earn an honest living. Special institutions will be opened for women and girls who come to cities in search of work or who are unemployed. If the morals of a girl under the age of 20 are threatened either in her own family or in the house where she is living, the authorities have the power to remove the girl and hand her over to an institution or to an honest family.

All administrative or other measures which heretofore have been in force for the control of prostitutes are abolished.

The new law solves an important social problem by protecting all young persons, especially girls, against venereal disease.

Death of Professor Joannovic

In the death of Prof. Dr. Georges Joannovic, the faculty of Medicine of Belgrade lost not only one of its leading professors but also its founder. Dr. Joannovic was born in 1871 of Serbian parents who were living in Vienna, where he studied medicine and as a young practitioner was chosen to be the assistant of Professor Paltauf. He worked for twenty-five years at the Institute of Pathology, Histology and Bacteriology in Vienna and was for many years head of the Institute of Pathology and Anatomy of the Vienna Polyclinic. In 1920, after the formation of the kingdom of Yugoslavia, Dr. Joannovic was invited by the government to found the first Yugoslav Faculty of Medicine, and with Dr. Batut and the late Professor Subbotic he founded the faculty. In 1926 the imposing building of the Institute of Pathology in Belgrade, projected according to the ideas of Professor Joannovic, was completed. His work on cancer research is known in all scientific institutions of Europe. After the death of Professor Paltauf Dr. Joannovic was invited to take the chair of his former teacher, in Vienna, but he refused the offer. He was dean of the Faculty of Medicine in Belgrade and a permanent member of the International Office for Public Hygiene in Paris, where he represented his country for many years.

Marriages

JESSE NEWMAN MCLANE, Pensacola, Fla., to Miss Marguerite Brittain Thompson of Tallahassee, May 4.

REX T. HENSON, Coeur d'Alene, Idaho, to Miss Edna Stoner of Spokane, Wash., June 2.

RUFUS CARTER ALLEY, Lexington, Ky., to Mrs. Frances Head Hudson, June 10.

CARNOT H. SHERMAN, Oakes, N. D., to Miss Hila Smith of Anoka, Minn., June 8.

RAYMOND R. RICHARDS, Blair, Wis., to Miss Alice Thwing of Augusta, June 10.

GLENN HALL RICKS, Brady, Texas, to Miss Mary Boyd Fleming, June 3.

Deaths

Henry Cottrell Rowland, Washington, D. C.; Yale University School of Medicine, New Haven, Conn., 1898; veteran of the Spanish-American War; war correspondent for *Collier's Weekly* and accredited special agent of the intelligence department, U. S. Navy, in France in 1918; author of several novels and short stories; aged 59; died, June 6, of asphyxia due to lymphosarcoma.

William Ellery McDuffie, Olean, N. Y.; University of Buffalo School of Medicine, 1888; member of the Medical Society of the State of New York; formerly health officer of Olean; past president of the board of education; on the staff of the Olean General Hospital; aged 74; died, June 12, at the Buffalo (N. Y.) General Hospital, of acute agranulocytic angina.

William M. Robertson ✠ St. Louis; University of Virginia Department of Medicine, Charlottesville, 1889; member of the American Urological Association; fellow of the American College of Surgeons; on the staffs of the Jewish and St. Louis City hospitals; aged 67; died, June 6, of chronic myocarditis, uremia and chronic nephritis.

John Eddy Luckey ✠ Vinton, Iowa; Rush Medical College, Chicago, 1897; for many years president of the board of education; fellow of the American College of Surgeons; on the staff of the Virginia Gay Hospital; aged 66; died, June 29, in the University Hospital, Iowa City, of thrombosis and pneumonia.

Clarence Wyman Fipphen, Shrewsbury, Mass.; Harvard University Medical School, Boston, 1919; member of the Massachusetts Medical Society; served during the World War; formerly member of the school committee and local board of health; aged 39; died, May 7, of heart disease.

William Sinn Gardner, Elkton, Md.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1889; for many years medical examiner for the Mutual Life Insurance Company, New York; aged 67; died, June 5, in Towson, of cerebral hemorrhage.

Charles W. Shaff, Lewiston, Idaho; State University of Iowa College of Medicine, Iowa City, 1881; member of the Idaho State Medical Association; fellow of the American College of Surgeons; on the staff of St. Joseph's Hospital; aged 77; died, June 22, of cerebral hemorrhage.

Thomas Edward Walton Grover, Huntington, W. Va.; University of Michigan Medical School, Ann Arbor, 1877; University of Louisville (Ky.) School of Medicine, 1883; formerly city and county health officer; aged 76; died, May 28, of pernicious anemia.

Moe Lenkowsky, Brooklyn; St. Louis University School of Medicine, 1928; member of the Medical Society of the State of New York; on the staffs of the Jewish and United Israel-Zion hospitals; aged 30; died, June 20, of acute myocarditis and leukemia.

Henry William Rice, Columbia, S. C.; Medical College of the State of South Carolina, Charleston, 1896; member of the South Carolina Medical Association; aged 64; on the staff of the Columbia Hospital, where he died, June 24, of heart disease.

William Joseph Egan ✠ Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; on the staff of St. Bernard's Hospital; aged 58; died, July 7, of cerebral hemorrhage.

Katherine Berry Richardson ✠ Kansas City, Mo.; Woman's Medical College of Pennsylvania, Philadelphia, 1887; aged 75; founder of the Mercy Hospital, where she died, June 3, of a ruptured gallbladder and peritonitis.

James Franklin Donnelly ✠ Portland, Ore.; University of Pennsylvania School of Medicine, Philadelphia, 1908; on the staff of the Good Samaritan Hospital; aged 49; was found dead in bed, June 28, of heart disease

Percy A. Scollick ✠ Kansas City, Kan.; Western University Faculty of Medicine, London, Ont., Canada, 1912; on the staff of the Providence Hospital; aged 44; was found dead, June 27, of coronary infarction.

Charles U. Davis, Fredericktown, Mo.; Beaumont Hospital Medical College, St. Louis, 1898; member of the Missouri State Medical Association; aged 61; died, May 4, of coronary occlusion and arteriosclerosis.

Ernest E. MacLeod, Los Angeles; University of Oregon Medical School, Portland, 1906; aged 62; died, May 9, in the Los Angeles County General Hospital, of inguinal hernia and arteriosclerotic heart disease.

Tracy George Russell ✠ San Francisco; Columbia University College of Physicians and Surgeons, New York, 1899; on the staff of the Southern Pacific Hospital; aged 60; died, June 18, of heart disease.

Winifred Mason Dowlin, Claremont, N. H.; University of Vermont College of Medicine, Burlington, 1892; member of the New Hampshire Medical Society; aged 67; died, April 12, of arteriosclerosis.

John Leonard Smith ✠ Pittsburgh; Temple University School of Medicine, Philadelphia, 1915; aged 42; on the staff of the Allegheny General Hospital, where he died, June 21, of acute appendicitis.

Frederic John Patton, New York; University of Minnesota Medical School, Minneapolis, 1899; served during the World War; aged 63; died, June 8, in the New York Polyclinic Hospital, of leukemia.

Sol Spainhour Flynt, Rural Hall, N. C.; College of Physicians and Surgeons, Baltimore, 1889; bank president; member of the school board; aged 72; died, June 15, of chronic myocarditis.

William Joseph Langan, St. Louis; Missouri Medical College, St. Louis, 1875; member of the Missouri State Medical Association; aged 82; died, May 22, of chronic myocarditis.

William John Shields, Sarasota, Fla.; Long Island College Hospital, Brooklyn, 1897; aged 61; died, June 24, in the Cleveland (Ohio) Clinic Hospital, of cerebral hemorrhage.

George M. Haywood, Minneapolis; Homeopathic Medical College of Missouri, St. Louis, 1881; aged 76; died, June 18, of coronary sclerosis and myocarditis.

William F. Waters, Flat Rock, Tenn.; Meharry Medical College, Nashville, 1910; aged 50; died, June 17, in Nashville, of cerebral edema and pneumonia.

Shandy Z. Holland, Daytona Beach, Fla.; Missouri Medical College, St. Louis, 1890; formerly mayor; aged 72; died May 21, of hypostatic pneumonia.

Susan Fairfield Laird, Blytheville, Ark.; Hahnemann Medical College and Hospital, Chicago, 1905; aged 75; died, May 25, of cerebral hemorrhage.

William Price Scott, Stockton, Calif.; California Medical College, San Francisco, 1899; aged 67; died, May 10, of arteriosclerosis and coronary occlusion.

Horace Tennent Dodge, Long Beach, Calif.; Hahnemann Medical College, San Francisco, 1887; aged 76; died, June 13, of acute dilatation of the heart.

William Lincoln Barnes, Atlanta, Ga.; University of Louisville (Ky.) School of Medicine, 1884; aged 70; died, June 24, of diabetes mellitus.

Charles Eugene Bryant, Blackfoot, Idaho; Minnesota Hospital College, Minneapolis, 1885; aged 84; died, April 2, at Pocatello, of nephritis.

Henry Nathaniel Scholl ✠ Green Lane, Pa.; Jefferson Medical College of Philadelphia, 1907; aged 49; died, April 5, of cerebral hemorrhage.

John Benjamin Adams, Honea Path, S. C.; University of Georgia Medical Department, Augusta, 1905; aged 51; died, June 1, of pneumonia.

John Crittenden Jordan, Detroit; University of Tennessee Medical Department, Nashville, 1894; aged 73; died, June 18, of chronic nephritis.

John M. Christian, Hamilton, Ga.; University of Georgia Medical Department, Augusta, 1892; aged 59; died, May 2, of chronic myocarditis.

W. M. Weatherall, Star City, Ark.; Physio-Medical College of Texas, Dallas, 1906; aged 64; died, June 12, in Pine Bluff, of gastritis.

Bureau of Investigation

THE WESTERN MEDICAL CORPORATION

Selling Phenobarbital (Luminal) as a Mail-Order Treatment for Epilepsy

The Western Medical Corporation is a later name for what was earlier known as the Western Medical Association. The concern sells on the mail-order plan what the public is led to believe is a cure for epilepsy. For some years it did business from 137-143 W. 62nd St., Chicago; recently (June, 1933) it moved to 415-423 W. 39th St., Chicago.

The Western Medical Association was the subject of an article in this department of THE JOURNAL, Jan. 28, 1922. It was brought out in this article that J. B. Creevy and W. W. Lister, M.D., were the two men mainly concerned in operating this piece of mail-order quackery. The public had no means of knowing that Dr. Lister was in any way connected with the Western Medical Association, and part of the advertising "come-on" sent out by the concern was a photographic facsimile of what was described as an "unsolicited letter" from Dr. Lister on his professional stationery, puffing the Western Medical Association's alleged treatment.

J. B. Creevy has also been connected with other mail-order quackeries, the Van Ard Sanatorium and the so-called Cass Treatment, both of them alleged cures for rheumatism.

In 1928 the Western Medical Association changed its name to the Western Medical Corporation. According to information furnished by the Secretary of State of Illinois, the Western Medical Corporation was incorporated in the State of Delaware and licensed to transact business in the State of Illinois as a foreign corporation in April, 1933. According to the same source of information, J. B. Creevy is its president.

Creevy's name appears nowhere in the advertising. The name that is played up is that of Harry L. James, M.D., who is described as the vice-president of the corporation and as the "directing physician." Harry L. James was born in Springfield, Ill., in 1885 and holds a diploma from Northwestern University Medical School, 1911, and an Illinois license granted in 1912. Needless to say, the man is not a member of his local medical society or of the American Medical Association. An important part of the advertising ballyhoo of the Western Medical Corporation is a six-page puff of Harry L. James, M.D., written by Harry L. James, M.D. In this Dr. James capitalizes his dead father's work and even his grandfather's work as physicians, although, so far as our records show, neither of these older men was even remotely connected with mail-order quackery. No small amount of space in this autobiography of Harry L. James is given to his exploits during the World War and how he came to be awarded an engraved "Roll of Honor" certificate. The sum and substance of this autobiography is, however, to emphasize that Harry L. James is one of three generations of physicians and that he specializes in the "treatment of epilepsy attacks."

In the advertising Dr. James would have the public believe that he is peculiarly well qualified to treat cases of epilepsy. A most careful search of medical literature from the time of Dr. James' graduation until June, 1933, fails to show that he has contributed a single article on any medical subject in any reputable medical journal.

In the autobiography already referred to, Dr. James says to the prospective victim that he is sending the advertising matter to him "with the thought that perhaps there is no physician near you who is thoroughly acquainted with the most up-to-date methods of treating epilepsy attacks."

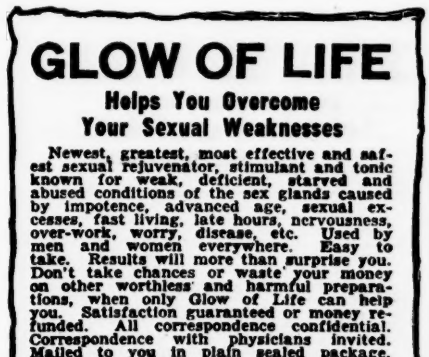
In the first article published on this concern, a detailed report was given of the findings of the A. M. A. Chemical Laboratory of the so-called "Western Medical Association Treatment." The tablets that were furnished at that time came in three boxes labeled, respectively, A, B and C. Box A was found to contain what were essentially one-grain tablets of phenobarbital (luminal). Box B contained tablets that had the general characteristics of those unscientific mixtures of pepsin, pancreatin, etc., vaguely described as "digestive tablets." Box C contained a laxative—tablets that responded to tests for emodin-bearing drugs and aloin.

In other words, this treatment is essentially the administration of phenobarbital to persons Dr. James never sees and sent out in a secret mixture on the mail-order plan for the self-treatment of a serious condition—epilepsy. To even an intelligent layman it should be obvious that there is neither moral nor scientific excuse for business of this kind.

THE GLOW OF LIFE FRAUD

Another Aphrodisiac Fake Debarred from the Mails

"Glow of Life" is a nostrum that was put out by the Glow of Life Laboratories Company of Columbus, Ohio. The company was owned and operated by Frank J. Albert and his brother, Ray J. Albert. Frank J. had no medical training or experience; Ray J. was a registered pharmacist. In March of this year, the Post Office Department sent the company a copy of a memorandum of charges calling upon the company to show cause why a fraud order should not be issued against it. At the time set for the hearing, no one appeared at Washington, but the lawyer for the company filed a written reply to the memorandum of charges. Judge Horace J. Donnelly, Solicitor for the Post Office Department, in his memorandum to the Postmaster General recommending the issuance of a fraud order, stated that the Glow of Life Laboratories Company advertised "in various publications of a kind which are not particular as to the character of the advertisements which


GLOW OF LIFE
Helps You Overcome
Your Sexual Weaknesses
Newest, greatest, most effective and safest sexual rejuvenator, stimulant and tonic known for weak, deficient, starved and abused conditions of the sex glands caused by impotence, advanced age, sexual excesses, fast living, late hours, nervousness, over-work, worry, disease, etc. Used by men and women everywhere. Easy to take. Results will more than surprise you. Don't take chances or waste your money on other worthless and harmful preparations, when only Glow of Life can help you. Satisfaction guaranteed or money refunded. All correspondence confidential. Correspondence with physicians invited. Mailed to you in plain sealed package, postpaid 24 tablets for $1.00; 100 for $3.00; 200 for $5.00. Druggists and agents write us for our special proposition.
GLOW OF LIFE LABORATORIES CO.
Dept. C-2, P. O. Box 744, Columbus, O.

Typical advertisement of "Glow of Life." This appeared in *Cloverleaf American Review*, May, 1932.

they print, including magazines whose principal contents are pictures of nude females and stories of a salacious character."

Those who answered the advertisements were sent a circular entitled, "Glow of Life, The Fountain of Youth, A Remedy That Will Help You To Overcome Your Sexual Weaknesses." With the circular came an order blank which contained the statement: "Our reputation and standing as manufacturing pharmacists and chemists is back of every order we send out." The postal authorities in their investigation discovered that the Glow of Life Tablets were actually manufactured for the promoters by another concern. The tablets sold for $1 a package of twenty-four, or about 4 cents a tablet. They consisted, according to the government's report, essentially of nux vomica and zinc phosphide, together with chalk and gum. The promoters had claimed that they also contained arsenic, gold, cantharides (Spanish fly) and laxatives. None of these were found.

The government presented expert medical evidence to prove that these tablets would not restore "lost manhood" or cure sexual impotence or frigidity. It also brought out the fact that the ingredients of Glow of Life Tablets have been incorporated in other preparations sold under similarly fraudulent claims in cases wherein fraud orders have been issued against the promoters of such schemes; yet, the Glow of Life concern claimed that their product was an original discovery!

In view of the findings, Judge Donnelly recommended the issuance of a fraud order and on April 26, 1933, the Hon. James A. Farley, Postmaster General, issued such an order, closing the mails to the Glow of Life Laboratories Company.

Correspondence

ALIMENTARY ANAPHYLAXIS AND FEVER OF UNKNOWN ORIGIN

To the Editor:—On page 1958 of THE JOURNAL, June 17, the answer to a question concerning fever of unknown origin makes no mention of the possibility of alimentary anaphylaxis as a cause of fever.

To test this possibility, all food should be omitted for a period of forty-eight hours, the patient being given nothing by mouth except water. Disappearance of the fever during this time will indicate that its origin was due to alimentary anaphylaxis. The particular food responsible can then be determined by adding articles of diet one by one.

A. Haritantis (*Presse méd.* **41**:119 [Jan. 21] 1933; abstr. THE JOURNAL, April 1, p. 1072) describes such a case of alimentary anaphylaxis with prompt disappearance of fever on omission of food. There are many points in common between the case of Haritantis and the patient of your correspondent, such as daily exacerbations of fever, absence of leukocytosis and negative general examination except for enlargement and tenderness of the liver.

This hypothesis of alimentary anaphylaxis is so easy to establish or to refute by the simple omission of food that it should be considered in all cases presenting frequently occurring chills or fever without obvious cause.

JOHN E. WALKER, M.D., Opelika, Ala.

VENOUS PRESSURE

To the Editor:—Concerning "A Clinical Method of Venous Pressure Determination" by H. F. Robertson (THE JOURNAL, July 15, p. 206), several important facts must be noted. It has been shown that the level of collapse is altered by the speed at which the arm is raised—very slowly, slowly, or rapidly. The tonus and irritability of the vessel wall and exercise of the part must be considered. The Gärtner and Frey methods of estimation of venous pressure have not come into general use because these simple methods of estimation are not sufficiently accurate.

Variations of venous pressure in conditions other than cardiac decompensation occur, obesity, pregnancy, the menopause, pneumothorax (tuberculosis), mediastinal disease, and emphysema and dyspnea resulting from it. Kroetz, in 1922, showed a rise in venous pressure in pneumothorax. "Essential venous hypertension" might be mentioned.

Engorged jugular veins, passive congestion in the lungs and elsewhere, cyanosis or subcyanosis, and enlarged tender liver are usually present when the venous pressure is increased in the arm. However, the clinical determination of the venous pressure in the arm may give earlier indications of beginning myocardial failure. In such cases decholin (intravenous) injections will give a delayed bitterish taste in the tongue and mouth and indicate early circulatory failure.

While visiting (1929 and 1931) in the Rudolph Schmidt medical clinic of the German University of Prague, I saw Winternitz and others use intravenous decholin injections as a useful means of rating cardiovascular insufficiency. The exact time interval from the moment of intravenous injection to the first appreciable bitterish taste in the tongue is used as the guide. This is increased in early myocardial failure.

Vaquez of Paris stated in 1924 that Frey's method and Gärtner's method are both unreliable. He concludes that "it appears that at present the study of venous pressure can scarcely instruct us in the normal or deficient resistance of the heart. It must be left for the future to decide whether, by perfecting the methods, these interesting but still limited ideas are susceptible of development, and of opening to the clinician new paths in cardiac or venous pathology."

William Evans of Detroit said, in 1932, "the estimation of venous pressure has not come into general clinical practice apparently because simple methods of estimations are not sufficiently accurate or because the more exact methods are not sufficiently simple."

HYMAN I. GOLDSTEIN, M.D., Camden, N. J.

"THE RESIDUAL EFFECTS OF WAR GASES"

To the Editor:—In THE JOURNAL, May 13, appears an editorial review of Gilchrist and Matz's article on this subject. In this editorial the statement is made that "mustard gas as used in the World War caused untold misery." It is believed that this statement may possibly create an impression that you do not wish to convey, for when the general effect of the use of mustard and other chemical agents in war is considered, exactly the opposite is found to be true. Mustard and other chemicals reduce the misery that is incident to warfare.

This point is best illustrated by a study conducted by Col. Albert G. Love of the Medical Corps of the United States Army. This study on war casualties was printed as Army Medical Bulletin 24. We in the service consider this work the outstanding statistical contribution pertaining to war data.

The following figures taken from Colonel Love's work show how much in the way of death and misery chemical weapons have avoided, and it should be remembered that mustard gas was the most effective of all chemical weapons. On page 111:

"The percentage of killed to wounded would then be:

"(*a*) 16 per cent when there are both gas and gunshot wounded;

"(*b*) 20 per cent when there are only gunshot wounded."

An analysis of these figures shows that when gas is added to other implements of warfare fewer men will be killed; the exact saving in life is 20 per cent. This does not mean that gas kills 20 per cent less than other weapons. Gas kills few, but when gas is used along with other weapons the death rate is reduced as quoted. This means that 20 per cent fewer families will lose loved ones during war. Is this not a misery-reducing factor?

I wish also to call your attention to pages 49 and 50 of the study mentioned. On page 49 you will see that almost 90 per cent (to be exact, 89.18 per cent) of the individuals whose battle injuries are caused by poisonous gas make a complete recovery and are able to return to full military duty, while you will notice that over one third of all of the casualties that are caused by gunshot injuries are rendered unfit for any further military service. Please notice that here we have war gases or chemical weapons avoiding over two thirds of the wartime misery. It is also worthy of note in connection with these two tables that on page 49 one finds that less than 2 per cent (1.73 per cent, to be exact) died in hospital from chemical injuries, while 8.12 per cent of those whose injury was caused by gunshot wounds died in hospital. Here again it is found that chemical weapons effect a reduction of the death rate of almost 80 per cent, and the consequent reduction in the misery that the families suffer is certainly equally great.

Please do not think that I am one of that group who make themselves ridiculous by referring to any weapon as "a humane weapon." I do not believe there is anything humane about war. But I do think that war is a very human eventuality that the world will always be confronted with, and I also think that a weapon can be a highly efficient agent for the production of casualties and still help to reduce the misery that is an incident of war.

LEON A. FOX, M.D., Washington, D. C.
Major, Medical Corps, U. S. Army.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TONSILLECTOMY IN SMALL CHILDREN

To the Editor:—What is the present attitude toward tonsillectomy in small children? I have advised this operation for a child aged 2½ years, who is suffering from bronchial asthma. The attacks recur approximately at intervals of six weeks. Skin tests are negative and elimination diets have given no results. Roentgenograms show infected antrums. The tonsils are moderately enlarged and chronically inflamed. The parents have been advised elsewhere against tonsillectomy. Please omit name.

M.D., Michigan.

ANSWER.—The attitude toward tonsillectomy in young children should be conservative. Occasional attacks of tonsillitis running a mild course unassociated with cervical adenitis and, of course, such other things as involvement of the endocardium should not make operation imperative. There is no set age limit, but many men like to wait until 3 or 4 years of age. As far as bronchial asthma is concerned, it is the consensus of most authorities in the field of allergic diseases that tonsillectomy neither prevents nor cures bronchial asthma. Of course, a child with asthma may have badly infected tonsils, like any other child. In this event the question should be settled on its own merits and without regard to the lung condition, unless this is so severe as to be a positive contraindication. Roentgenographic evidence does not make the diagnosis of infected sinuses. The shadow so frequently seen in allergic individuals may just as easily be due to an edematous polypoidal nonsuppurative involvement of the sinus mucosa as to a purulent condition. The roentgenographic evidence should be coupled with a search in the nose for the presence of pus; if this is present and does not yield to conservative measures such as suction and astringents, one should carry out lavage or at least diagnostic puncture, in this case preferably under gas anesthesia. An asthmatic child with a suppurative sinusitis of any degree does better when this condition is removed.

CARITOL AND CAROTENE

To the Editor:—I have seen statements that Carotene as sold by the S. M. A. Corporation in the form of Caritol is recommended for treatment of cataract. Is there any justification for this statement? Has Caritol been accepted by the Council on Pharmacy and Chemistry? In an advertisement of the S. M. A. Corporation there appears the following statement: "Cod Liver Oil, halibut liver oil and other fish oils do not contain carotene (primary vitamin A), and the secondary form, which they do contain, cannot be converted into primary vitamin A. Carotene should be prescribed either alone or with other vitamin products." This implies that Carotene should be added to fish liver oils. Is there any justification for this belief? Is Carotene any better than vitamin A? Please omit name.

M.D., Ohio.

ANSWER.—The claim for the value of carotene in the treatment of cataract is apparently based on the reprint of an article by Dr. T. H. Shastid (Carotene and Cataract, *American Medicine*, January, 1933). This report has been circulated widely among physicians. The only part of Dr. Shastid's paper dealing with the announced subject is a short paragraph in which he reports that in "three fairly advanced cases" of cataract he had "excellent results with Caritol." In the three succeeding paragraphs the increase of visual acuity in patients is given and the author urges "other oculists to try out caritol thoroughly," remarking that "whenever it does no good, it will do at least no harm." This may be true; but if it "does no good" the patient loses time and money to gain the increased visual acuity which, today, operative procedure can certainly give. The remainder of Dr. Shastid's article deals with quite other matters. The statement elsewhere in the article that Caritol had apparently desensitized to "house-dust" allergy and had given a "decided increase in her hearing power" to a patient is hardly scientific.

It is, of course, misleading for the firm to base claims of the value of "Caritol" in the treatment of cataract on the casual report of three cases. The Council on Pharmacy and Chemistry has recognized no such claims for Carotene or for vitamin A as contained in fish liver oils or concentrates. It is surprising, to say the least, that the firm should be advancing such claims.

The statement quoted by our correspondent is found in an advertisement appearing on page 2, *Medical Economics*, April, 1933. It is a masterpiece of misrepresentation. The fact that fish oils do not contain carotene has nothing whatever to do with their therapeutic value and the fact that the vitamin A which they do contain cannot be converted into carotene is also entirely beside the point, since it would be ridiculous to desire to have the "finished vitamin" converted into an inert precursor. Interpreted strictly, the statement in the last sentence of the quotation implies that carotene *should* be prescribed in order to bring about desired therapeutic results; at most, one might be justified in saying that "carotene" may be so prescribed, which is an obvious platitude. In this quotation, as in other advertising propaganda, the firm stresses "primary" vitamin A as if it had some superior virtue. As a matter of fact its value apparently depends on its being converted into true vitamin A, which the firm attempts to belittle by the designation "secondary form." There is evidence that carotene is by no means always converted quantitatively into vitamin A or its equivalent; so that the relative importance would seem to be in favor of the fully formed or "secondary" form as of foremost significance. Furthermore, it is debatable whether one ought in fairness to refer to carotene as "primary vitamin A." The false implication is that carotene actually is a kind of vitamin A, whereas it is merely a mother substance or possible forerunner of the vitamin itself.

CREOSOTE BURNS OF THE EYE

To the Editor:—During the past year I have had several cases of burns of the conjunctiva caused by creosote getting in the eye. These burns have been rather persistent (from ten to twelve months), manifesting themselves with severe conjunctivitis with no evidence of adhesions between the bulbar and palpebral conjunctiva. I should like to know whether there is anything in creosote that would cause this condition to persist. It might be some other chemical than creosote causing this condition. If you have any idea what this chemical is, please let me know. I have also noticed that, following traumatic eye conditions and foreign bodies in the eye, these cases have had a great deal of meibomian gland infection. When pressure is exerted on these lids, pus can be seen exuding from the ducts of the glands and in some cases this infection is rather difficult to clear up. I should like to know whether this type of infection is common following traumatic injuries and foreign bodies of the eye. Please omit name.

M.D., Texas.

ANSWER.—Creosote is a name applied to a complex mixture of phenols and their ethers produced in the fractional distillation of wood tar. It is also applied to a similar product obtained from coal tar. Both products are usually brownish, because of impurities; pure creosote is colorless. It is impossible to say whether the irritative effect on the conjunctiva is due to one of the phenols or to one of the ethers or to some impurity. In all probability the compound causes a chemical irritation due to a low degree of superficial burn of the conjunctival epithelium which destroys the integrity of the tissues. It is not probable that any of the creosote remains on or in the tissues to produce continued burning. The persistent conjunctivitis is due to secondary infection that is difficult to control owing to the altered character of the epithelium in which the infection is found. Mechanical lavage with nonirritating solutions will prove more efficacious in the long run than bactericidal agents.

Infection of the meibomian glands of the eyelids is common following trauma to the eye and is best treated by frequent and repeated massage of the eyelids.

LEAD POINTS IN ELECTROCARDIOGRAPHY

To the Editor:—In THE JOURNAL, Oct. 1, 1932, in Carter's article on electrocardiography, page 1171, it is stated "that the three lead points, when connected, form a triangle, which can be considered to be essentially equilateral (fig. 7). Electrically and geometrically lead 2 is equal to the sum of lead 1 and 3 and therefore . . ." I cannot see the application. Will you please set me right. Please omit name.

M.D., Pennsylvania.

ANSWER.—The three lead points universally used in electrocardiography, as Einthoven has indicated, constitute the vertices of a triangle which can be considered to be essentially equilateral. The projections of the total resultant heart potential in the plane of the chest on the sides of this imaginary triangle represent the potential differences at any given period in the cardiac cycle recorded by the electrocardiograph for the various leads. The projection on the side connecting the right arm and the left arm represents the potential of lead 1; on the side connecting the right arm and the left leg, potential of lead 2, and that on the remaining side the potential of lead 3. These potentials may be likened to the drops in voltage over three resistances connected to form a triangle. In such a closed network it is known by Kirkhoff's Law that the algebraic sum of the potential drops is equal to zero. Hence the potential in lead 2 at any instant equals the sum of the potentials in leads 1 and 3 at the same instant. From an inspection of figure 7 (page 1172) it is evident that, if potentials in leads 1 and 3 are considered

positive, the potential in lead 2 must be considered negative. Further discussion may be found in "The Mechanism and Graphic Registration of the Heart Beat," by Thomas Lewis, London, Shaw and Son, 1925, page 107.

DIET IN GOUT

To the Editor:—Please designate the articles of food in the following list which may be permitted to a patient with chronic gout (medical textbooks are either indefinite on the subject or do not mention this group):

Crabs	Tomatoes, juice	Turnips
Clam chowder	Tomatoes, stewed	Cabbage
Oyster soup	Bananas	Corned beef
Corn bread	Strawberries	Malted milk
Rye bread	Cherries	Bacon
Stewed corn	Rhubarb	Ham
Sauerkraut	Lentils	Avocado
Salmon	Dried prunes	Peanut butter
Lamb, roast	Sweet potatoes	Cherries (fresh)
Tomatoes, raw	Beets	

Is there a book that contains a complete and detailed list of foods which may be given patients in various diseases and which should be prohibited?

EMIL KRULISH, M.D., Portland, Ore.

ANSWER.—Usually in a case of gout the foods containing purines are restricted. The amount of purine in the various foods can be determined from the quantitative tables compiled by J. Walker Hall. Unfortunately not all foods are listed, but as far as we can determine in the list submitted in the question we are able to give the following:

Foods allowed: corn bread, rye bread, stewed corn, raw tomatoes, tomato juice, stewed tomatoes, bananas, strawberries, fresh cherries, canned cherries, rhubarb, sweet potatoes, beets, turnips, cabbage, malted milk, avocado pear, peanut butter, prunes.

Foods restricted: crabs, clam chowder, oyster soup, salmon, lamb roast, lentils, corned beef, bacon, ham, sauerkraut (because of high seasoning).

Detailed diet lists may be found in the following books:

McLester, J. S.: Nutrition and Diet in Health and Disease, Philadelphia, W. B. Saunders Company.
Baer, Oscar: Diet Prescriptions, Niagara Falls, N. Y., Arnson's Service and Supplies.
Friedenwald, Julius, and Ruhräh, John: Diet in Health and Disease, Philadelphia, W. B. Saunders Company.
Hall, J. W.: Purine Bodies in Foodstuffs, London, 1903, quoted by Carter, Howe and Mason: Nutrition and Clinical Dietetics, 1923.

USE OF SPECTRUM ANALYSIS IN LIVING HUMAN BODY

To the Editor:—Is it possible by means of the x-rays or other instrumentality to determine intra vitam the organic constituents of bone and other tissues of the body by spectrum analysis and, if so, quantitatively?

THOMAS I. O'DRAIN, M.D., Philadelphia.

ANSWER.—The conditions under which spectrum analysis of organic materials must be carried on preclude its application to the living human body. Such methods could be applied only to tissues removed at biopsies or to samples of blood, urine or the like. While hemoglobin, and possibly some other substances, might be uncertainly recognized in an analysis of light that had passed through the ear or the hand, the opacity of human tissues is too great to permit the obtaining of any definite results; certainly, no quantitative results are possible.

Some inorganic constituents may be identified by x-ray spectrum analysis, such as $CaCO_3.nCa_3(PO_4)_2$ in bone (n being not less than 2 nor greater than 3). Or they may be excluded, as $CaHPO_4$ or $CaCO_3$. (Roseberry, H. H.; Hastings, A. B., and Morse, J. K.: X-Ray Analysis of Bone and Teeth, *J. Biol. Chem.* **90**:395 [Feb.] 1931). Some approximate quantitative estimates by x-ray spectrum analysis have been made on material removed from bodies.

OPTIMUM ATMOSPHERIC CONDITIONS IN HOSPITALS

To the Editor:—Inquiry has been made of me regarding the optimum atmospheric conditions for hospital operating and convalescing rooms. I should like to have your opinion regarding conditions of temperature, humidity and air motion which should be maintained in such places. I should also appreciate your opinion as to whether or not conditions should be varied for different types of operations. Any data will also be appreciated which you may have on convalescing rooms. Several of the hospitals in town are interested in air conditioning and I should like to assist them in the selection of equipment but do not wish to make any recommendations until I have additional information from some authority as to what conditions should be maintained. I am therefore requesting that you give me the benefit of your experience in this matter.

OTIS L. TURNER, Engineer, Washington, D. C.

ANSWER.—The optimum atmospheric conditions for an operating room in a hospital are a temperature of from 74 to 76 F. and a relative humidity of from 50 to 55, with a ventilation circulation of four or five air changes an hour. There is no reason why these optimum conditions should vary with the type of operation performed.

In convalescing rooms a comfortable temperature is of more importance than the relative humidity, although a desirable humidity has admitted value. For convalescent wards the optimum temperature is from 68 to 70 F. in the daytime and somewhat lower than this at night, with a relative humidity of from 50 to 60 and a ventilation circulation of four or five air changes an hour.

The relative humidity most suitable often depends on the disease. Pneumonia patients and those suffering from bronchial conditions will often find relief in a low relative humidity (from 20 to 25), while in another section of the same hospital, in the nursery department, a high humidity, approximating 60 to 65, is most satisfactory.

CHRONIC NONSPECIFIC PROSTATITIS

To the Editor:—Will you please outline the treatment for chronic nonspecific prostatitis? My patient has had massages for more than a year by a urologist but still he has recurrences with fever and violent headaches. Smears and cultures have shown B. coli as the predominating organism. No history of gonorrhea has been given and repeated Wassermann tests are negative. He is able to go about his business most of the time and otherwise appears good except for a spastic colon. Roentgenograms of the chest are negative also. Any recent advances or suggestions would be especially appreciated. Please omit name and address.

M.D., Illinois.

ANSWER.—A recurrent nonspecific prostatitis is rarely primary. This patient should be studied for other foci of infection which may be responsible for the recurrence of the prostatitis. The fact that he has a spastic colon is rather suspicious. Calculi in the follicles of the prostate gland are at times the cause of persistence or recurrence of infection. A roentgenogram should reveal such calculi. An autogenous vaccine, although rarely helpful, might be tried.

METABOLIC DISORDER WITH GLYCOSURIA AND DISTURBANCE OF WATER BALANCE

To the Editor:—A woman, aged 46, came under my care a year ago when she had an acute infection of the upper respiratory tract. Diabetes had been diagnosed several years before, when, according to the history, a bowel resection was done, but the diabetic condition had never been treated. She has one grown child. When she went to bed with the respiratory condition, she weighed 215 pounds (97.5 Kg.); on recovery, she weighed 195 pounds (88.5 Kg.). Though when I first saw her one drop of urine reduced 5 cc. of Haines' solution, sugar has at most times been eliminated from the urine by dieting alone. A few recurrences have lasted less than a week. Cooperation has been so good that it has never been necessary to resort to the use of insulin. However, attempts to bring her down to approximately normal weight have failed. The basal metabolic rate on two occasions has been —5 and —15; the systolic blood pressure runs from 160 to 170 mm. An electrocardiogram was typical of hypertension but otherwise negative. Thyroid has been given up to 12 grains (0.78 Gm.) a day and diet has been reduced to 900 calories or less, but the weight remains between 185 and 190 pounds (84 and 86 Kg.). When thyroid is discontinued, she gains rapidly. Calcium has been given almost continuously and pituitary and ovarian extracts have been combined with the thyroid for short periods. The pulse rate has not gone above 106, but after a few days, on large doses of thyroid, edema of the legs becomes marked with increase of weight. Please omit name.

M.D., Illinois.

ANSWER.—There are two problems in this case. The mild glycosuria described in association with obesity and hypertension probably belongs to the type of mild diabetes often seen with this combination. Usually it is not only unnecessary but unwise to use insulin, for when the weight is reduced to normal the glycosuria is apt to disappear.

In considering the question of the patient's obesity, attention should be called to the fact that during the infection of the upper respiratory tract she lost 20 pounds (9 Kg.). This fact in itself shows that the patient can lose weight. Also, the interesting observation regarding the appearance of edema of the legs brings up the question as to how much of her weight increase is due to a disturbance of water balance. It may be that in addition to a marked restriction of calories attention should be paid to the salt and water intake, both of which should be definitely limited. The total sodium chloride intake should be restricted to the amount natural in foods, and the patient should add no salt to any of her food. The fluid intake might well be restricted to 1,000 cc. or, at the most, 1,500 cc. daily. In addition, some type of diuretic drug, such as ammonium chloride, by mouth, or one of the mercurials, such as salyrgan intravenously, might be given a trial.

Until efforts to correct the possible error in water balance are tried, it would seem unwise to attempt other forms of therapy. Naturally, however, a low caloric diet must be maintained.

USE OF MERCUROCHROME INTRAVENOUSLY IN GONORRHEA

To the Editor:—Please give your opinion on the use of 1 per cent mercurochrome used intravenously in the treatment of active gonorrhea, the use of mercurochrome in certain high concentration applied locally as an antiseptic, and the use of merthiolate, 1: 1,000, used as a local antiseptic as tincture of iodine is used.

RICHARDS A. IRONS, M.D., Thomasville, Ala.

ANSWER.—This question was referred to the Brady Urologic Clinic of Johns Hopkins University Medical School, which replies:

Injections of 1 per cent mercurochrome intravenously should, of course, be combined with appropriate local treatment. Even when the infection has become well established and has resisted various types of local treatment, the eradication of the infection can be hastened by intravenous injections of mercurochrome in many cases, according to published reports. Also, if used soon after the onset of complications, such as acute epididymitis and acute prostatitis, the duration and severity of these complications are appreciably shortened. The intravenous injections of mercurochrome are an important adjunct to the therapy of gonorrheal rheumatism in the acute, subacute and chronic forms. In the acute, extremely painful joints, this form of treatment, it is reported, is often followed by marked relief of discomfort and inhibition of the destructive process.

As with other forms of specific or nonspecific therapy, intravenous mercurochrome should not be used unless one has been assured by physical examination that there is no preexistent cardiorenal disease. The patient should be warned that in about one hour's time a reaction is to be expected, manifested by malaise, chill, fever, nausea and, perhaps, vomiting. The best results are usually obtained in cases presenting such a reaction. In some cases, some vague abdominal discomfort may occur, accompanied by slight diarrhea. It is, therefore, customary to instruct these patients to go home to bed immediately following the injection, but the reports do not indicate a reaction of sufficient severity to require hospitalization. In adults, a dosage of 12 cc. of a 1 per cent solution is used and, at the same time, local treatment. After an interval of two or three days, an injection of 14 cc. is given, and, four days later, an injection of 16 cc. If organisms are still present, injections of 18, 20 and 22 cc. of a 1 per cent solution may be given at intervals of four or five days. However, as a general rule, definite results have been obtained usually after the first three doses. It is extremely important that only the crystals prepared for intravenous use be used. After the 1 per cent solution has been made in freshly distilled, boiled, cooled water, it must not be boiled or autoclaved.

In urologic work, mercurochrome is rarely used in stronger than a 2 per cent solution in the urethra or bladder. Occasionally, in the treatment of ulcerative lesions about the genitalia, we have used 10 and 20 per cent solutions with satisfactory results, but it must be remembered that these solutions have certain caustic effects. Brady has used 20 per cent aqueous solution in the treatment of gonorrheal vaginitis and cervicitis, applications being made with tampons.

For skin sterilization, a solution of acetone, alcohol and aqueous 2 per cent mercurochrome is used exclusively in the Brady Clinic, as it does not produce the irritation and desquamation that so often follow the use of tincture of iodine, especially about the external genitalia.

Whereas there are many antiseptics far more powerful than mercurochrome, the chief value of this drug is emphasized to be that its antiseptic action is combined with a relative lack of irritating and toxic properties.

TREATMENT OF CHRONIC MYELOGENOUS LEUKEMIA

To the Editor:—A friend of mine, aged 31, has chronic myelogenous leukemia. His latest white cell count is 870,000, 65 per cent of the cells being myelocytes and myeloblasts. His only complaint is occasional severe priapism. There is some question as to when to begin roentgen therapy, also the use of arsenic preparations or even benzene. I would appreciate information as to best treatment, including relief and prevention of priapism. Please omit name and address.

M.D., New York.

ANSWER.—Irradiation, by either x-rays or radium, is the most effective means for the control of chronic myelogenous leukemia. It is not to be considered a cure nor will it materially prolong life, but it will increase the period of effective life and markedly alleviate symptoms. With time its effectiveness becomes less marked, the disease process becoming more refractory with each successive treatment. Treatment by radiation should therefore be conserved; the general condition and the complaints of the patient rather than the blood count should determine whether and when such treatment should be begun or repeated.

In the present instance, with a white blood count of 870,000, of which 65 per cent are myelocytes and myeloblasts, and with the patient suffering from attacks of priapism, it would seem wise to start treatment with radiation at once.

If irradiation by x-rays is selected (as indicated by the question), a total dose of from 300 to 350 roentgens over the spleen for each series of treatments should be effective, from 100 to 116 roentgens being given each over the anterior, posterior and lateral surfaces of the spleen, at a distance of 20 inches, with 180 or preferably 200 kilowatts, with 1 mm. of copper and 1 mm. of aluminum filters, at intervals of three days. Beneficial results will probably be in inverse proportion to the number of immature or blast cells present.

Arsenic has long been used with benefit in the treatment of chronic leukemia, but with the advent of irradiation its use had all but gone out of fashion. There appears to be no good reason why arsenic should not be administered in the intervals between periods of irradiation, and, in fact, it is again being extensively used in this manner.

The use of benzene has been almost if not entirely abandoned in the treatment of leukemia in recent years on account of the difficulty of control and the adverse effect it has on the development of red blood cells.

The exact cause of priapism in leukemia is not known; it is, however, but one of many clinical manifestations of leukemia and should recede, if not disappear, as a manifestation of the disease with the benefits to be anticipated by the use of irradiation and arsenic. Other means for the control of priapism, such as the use of large doses of potassium bromide or monobromated camphor by mouth, the surgical aspiration or ligation of the corpora cavernosa, or the use of diathermy by rectum have been recommended but are of questionable effect.

USE OF IODIZED PROTEINS IN ARTERIOSCLEROSIS

To the Editor:—May I ask you to be good enough to advise me whether enough scientific data have been established between the protolipo and alkali iodides as to their absorption, systemic action, elimination and preference, especially in cases of arteriosclerosis. (I know that in syphilitic cases potassium iodide is preferable.) Should the calcium intake in case of arteriosclerosis be reduced or kept about the same level? Kindly omit name.

M.D., California.

ANSWER.—Thus far, clinical studies have failed to reveal any convincing evidence of differences in effect of the electrolytic alkaline salt iodides and iodized lipins or iodized proteins. Numerous claims of superior activity for one or another preparation have been advanced, but thorough clinical trail fails to substantiate these claims. The mechanism of action of the ordinary iodides is not understood. The most conspicuous effects are seen in the stimulation of absorption of some inflammatory exudates, particularly syphilitic gummas. The iodides do not show any germicidal power. The effects of iodides on arteriosclerosis are probably limited to the enhancement of absorption of syphilitic exudates in the arterial walls; it is most questionable whether they are of any appreciable benefit in nonsyphilitic arteriosclerosis. Certainly the iodides have no direct lowering effect on the arterial tension.

Iodine compounds with proteins and lipoids are somewhat less irritating to the alimentary tract than potassium iodide. The percentage of iodine in the various organic iodides, as listed in New and Nonofficial Remedies, varies from 18 to 80 per cent. Much variation in pharmacologic effect is therefore to be anticipated, based on weight for weight dosage; based on actual iodine ingested, the pharmacologic effect does not vary much. The iodized fatty acids produce similar systemic effects, but they are much more slowly absorbed and more slowly eliminated. Iodized fatty acids are saponified and absorbed in the small intestine, as are the ordinary fats. The chemical investigations of F. C. McLean (*Arch. Int. Med.* **15**:92 [Jan.] 1915) and others have demonstrated that most of the iodine is in the lipoid fraction on tissue extraction when iodized fatty acids are administered; when potassium iodide or iodized proteins were given to animals, more iodine was found in the water soluble fraction of the tissues. McLean concluded that iodized proteins and the metallic iodides have almost identical action but that iodized lipins are slowly absorbed and secreted as such. Histochemical identification of iodides in tissues is extremely difficult; as yet no wholly satisfactory method has been found (Gersh, E. I., and Stieglitz, E. J.: *Anat. Rec.*, May 1933).

In view of these considerations it is highly improbable that any appreciable difference in clinical effects could be anticipated from one or another of the various iodide compounds. Theoretically the iodized lipoids might offer some advantages:

slower absorption, milder and more prolonged action and increased lipoid solubility (arteriosclerotic lesions are lipoid in nature). Thus far these theoretical considerations have not received adequate clinical proof. There is no indication for radical restriction of calcium-containing foods in arteriosclerotic disease. Additional calcium medication is unnecessary and unwise.

USE OF SODIUM MORRHUATE IN THROMBOPHLEBITIS

To the Editor:—I am now treating a woman, aged 45, with varicose veins who gives a history of having had an indurated area at the lower end of the inner side of the right leg for the past four to five years. This area at times swells considerably and becomes painful. When I examined her, I found a red, very thick and indurated area at the site mentioned, which was not painful (6 cm. transverse, 4.5 cm. vertical diameter) and only slightly tender to the touch. The patient weighs 245 pounds (111 Kg.). The blood pressure is 150 systolic, 100 diastolic. The lungs and heart are normal. Urinalysis is negative except for poor concentration (the specific gravity is only 1.012). The Wassermann reaction of the blood is negative. I should like to treat this patient by the injection method. In the meantime I have advised elevation of the leg, with applications of warm boric acid solution. Would the presence of the red, indurated area be a contraindication to injection? Is chronic nephritis a contraindication? I have inquired at a local druggist concerning sodium morrhuate, mentioned by Smith (THE JOURNAL, Dec. 10, 1932, p. 2008), but the druggist was not familiar with the preparation. What is its nature and what company produces it? Is it necessary to use a tourniquet when injecting this chemical? Please let me know also whether you believe the indurated area will clear up following the injection treatment. I have informed the patient that if this lesion is neglected it will eventually form a chronic varicose ulcer. Was I correct? Please omit name and address.

M.D., New York.

ANSWER.—The description of the case suggests a superficial patchy thrombophlebitis with a tendency to recur. A search should be made for infected teeth and tonsils. If the deep veins are patent and provocative injections of a few drops of sodium morrhuate do not activate a latent phlebitis, a cautious obliteration of the veins above the thrombophlebitic induration may be attempted. Nephritis or the presence of degenerative kidney lesions does not contraindicate the injection treatment. Sodium morrhuate is the iodine salt of fatty acids of cod liver oil. A description of the product and tests for its purity appeared in THE JOURNAL, June 3, page 1766. It is available in 5 and 10 per cent solution. The Council on Pharmacy and Chemistry has accepted for inclusion in New and Nonofficial Remedies Ampules Sodium Morrhuate 5% with Benzyl Alcohol (Searle); another brand, we are informed, is before the Council for consideration. The use of the tourniquet is not obligatory. The indurated area may soften to some extent and the red discoloration may become lighter, but a certain amount of pigmentation will remain. The induration should also be treated with prolonged elastic support, such as the Unna's paste boot or elastic adhesive dressings, and, in rebellious cases, can be favorably influenced by small repeated doses of x-rays. The thrombophlebitic patch may break down very easily and thus form a chronic thrombophlebitic ulcer. Generally speaking, the case described requires considerable experience and an activation of a latent phlebitis with ascending thrombosis should be carefully avoided.

TROPHIC ULCER IN DIABETES

To the Editor:—I have a patient, aged 46, with true diabetes mellitus. He weighed 290 pounds (131 Kg.) four years ago and now weighs 215 pounds (97.5 Kg.). He is kept free from sugar with two doses of insulin while on a diet of 2,250 calories. The point that interests me is the treatment of an ulcer on the sole of the foot, which is punched out and from time to time develops sinuses under the skin. It becomes necessary to slit up these tracks, which heal but leave the ulcer present as usual. This condition was present on the other foot but is now healed after being present for six months. The ulcer now present has been there for six months and has a foul discharge. I have tried dressing it at different times with the following: scarlet red over a period of several weeks; dichloramine over a period of several weeks; iodex ointment over a period of several weeks; alcohol over a period of several weeks; bacteriophage ointment for several weeks. It looks like a perforating ulcer, but the Wassermann reaction has always been negative. The patient tells me that since boyhood he has had callous spots of both feet, which he has been able to care for with salicylic acid in collodion. The last few years he has not had the same success. I should appreciate any advice you may care to give. The textbooks, including Joslin, advise general care, but I do not seem to have success. Please omit name and address.

M.D., Illinois.

ANSWER.—From the description, the ulcer is a trophic disturbance. The predisposing cause of such an ulcer in a diabetic patient is usually a diabetic neuritis which has rendered the innervated area partially or wholly anesthetic. The constant pressure of a corn or a poorly fitting shoe may then act as the immediate exciting agent to produce the lesion. The development of the ulcer is, of course, favored by the poorer nutritional state of the limb due to the arteriosclerosis that is usually present. The latter factor and the constantly open wound also account for the recurrent infections that have had to be treated.

In view of the foregoing, one would hardly expect the ulcer to respond to treatment by the application of antiseptics alone. The treatment should be directed at the cause of the lesion, which is the constant, unrelenting pressure or trauma to that particular spot on the sole of the foot. Prolonged rest and elevation of the foot are indicated. Any exuberant epithelial growth about the ulcer may be removed, and quartz light or other forms of radiant heat may be of benefit. Mild antiseptic dressings should be used only to protect the wound from extraneous infection. When the ulcer has healed, attention should be directed to the care of the feet and the padding of the shoes so as to avoid pressure at the site of the ulcer.

The local application of insulin to the ulcer has been reported to be of benefit in some such cases and may be worth trying in conjunction with the suggestions already given.

IRRIGATION AND MASSAGE IN CHRONIC GONORRHEA

To the Editor:—In the answer to the query regarding chronic gonorrhea (THE JOURNAL, April 1, p. 1058), the last three lines of the third paragraph mention "alternating massage with dilation of the prostatic urethra, followed by instillation or irrigation." An instructor advised irrigation first and massage afterward, owing to the increased danger of epididymitis with the reverse procedure. May I have the consensus on this point?

E. D. ABRAHAM, M.D., Los Angeles.

ANSWER.—There is no reasoning for the danger of producing epididymitis by reversing the procedure given in the answer. The usual methods in all well regulated places make use of irrigation following massage for the purpose especially of washing out from the urinary tract the expressed secretions resulting from this manipulation and is the method to be recommended.

ONYCHOLYSIS

To the Editor:—For more than a year a patient of mine has noted that her fingernails are loosening from their beds, at the sides of the nails. The condition is becoming progressively worse. The strips of loosened nail are about a sixteenth of an inch in width, and in some cases extend back almost to the moons. At least a third of the surface of one nail is undermined. The nail bed is not particularly tender and is not moist. There are no signs of active infection, nor has there been any infection in the past. There is no suggestion of a low metabolism, and the history is devoid of suggestion. Will you mention possible causes and appropriate treatment? Please omit name.

M.D., California.

ANSWER.—From the description, this must be one of the rare cases of true onycholysis, in which there is no manifest general or local disease to account for the loosening of the nails. Of the few cases on record, in a number there has been hyperhidrosis of the hands, sometimes associated with cyanosis and cold hands and feet. The toenails are not often involved. Others have shown no signs of acrocyanosis. In one case, the trouble existed on both third fingers from early childhood. In another, the loosening of the nails was associated with severe pain in the upper extremities, possibly an atypical case of erythromelalgia, or Raynaud's disease. The etiology is wholly dark. Therapy suggested by Julius Heller, the chief authority on this subject (*Handb. d. Haut u. Geschlechtskr.* **13**:115 [No. 2] 1927) consists of washing the hands in hot water, followed by stimulating applications containing tar, resorcinol and salicylic acid in oil or in alcohol and glycerin, painted on or as a dressing. Preparations of arsenic may be given internally, with care to prevent its continued use. The prescription should be labeled "Do not repeat."

SODIUM AMYTAL IN OBSTETRICS

To the Editor:—Can you give me any information regarding the use of sodium amytal in obstetric practice? The makers recommend giving 3 grains (one capsule) as soon as the cervix is effaced or dilated to at least 2 cm. A second dose (3 grains) is given in from one to four hours if necessary. What effect have the barbiturates on the force of labor pains? Is there any danger to the fetus in their use?

W. J. COCHRANE, M.D., Westborough, Mass.

ANSWER.—Opinion is divided concerning the success obtained with sodium amytal in obstetrics. Most obstetricians who employ this drug are enthusiastic about it. Some administer it orally, others rectally and still others intravenously. In most instances, regardless of the route, complete amnesia is secured if the drug is given early and in sufficient doses. The general consensus is that labor is not retarded by the barbiturates. It is claimed that sodium amytal furnishes a satisfactory method of treating spastic cervix and retraction ring. It is generally

conceded that, when given in proper doses, no ill effects are observed on the babies. In contrast to these favorable opinions are some which maintain that administration of sodium amytal necessitates an increased frequency of forceps deliveries and results in the frequent narcotization of babies.

This drug and other sodium barbiturates have two distinct disadvantages: First, its administration, whether by mouth, by rectum or intravenously, requires skill and good judgment; therefore it must be given by a physician and not by a nurse. Second, restlessness, in some instances quite violent, is observed in a definite proportion of women. This necessitates an increased personnel to manage these women in labor, aside from the harm that may result to them, especially to those with a high blood pressure.

The Council on Pharmacy and Chemistry cautions against the intravenous use of sodium barbiturates, except under conditions of emergency.

TORSION OF THE TESTICLE

To the Editor:—A man, aged 24, gives the following history: Four years ago in a running jump, he jumped a height of three feet. While in the air, he suddenly felt a severe pain in the right testicle, which seemed to him as if the cord was being pulled on the testicle. He was doubled up with pain, which lasted from half to three quarters of an hour. Afterward, the testicle was swollen twice its normal size. He was put to bed, and the next day the other testicle was swollen and as tender as the right. He remained in bed one week, during which time the scrotum was supported with a pillow. Since being up he has worn a suspensory but has a continual hurting at the site of both external rings, which are normal in size. During the past four years he has been examined repeatedly by an excellent urologist, medical man and surgeon, and no pathologic condition has been found. Kindly advise as to proper diagnosis and treatment. Please omit name.

M.D., California.

ANSWER.—From the history, it is evident that the patient suffered from a rare condition variously termed "torsion of the testicle" or "torsion of the spermatic cord."

The treatment, as followed at that time, apparently relieved his condition at the time. When the torsion has been relieved, the testicle, as a rule, rapidly returns to normal. On the other hand, when the torsion persists and is not relieved within a short time, complete atrophy usually follows; therefore it would be interesting to know whether or not he has, at this time, atrophy of one or both testicles.

On the other hand, his pain at this time may be referred pain due to infection in the prostate gland, or seminal vesicles, or both. Because of this possibility, a careful rectal examination is in order and this should include stripping of the prostate and vesicles so that the fluid expressed may be examined for the presence of pus, in which event the usual treatment for chronic infection is in order, such as massage, hot sitz baths, heat by rectum, and the internal administration of potassium iodide, 0.65 Gm., three times a day, and sodium salicylate, 0.65 Gm., three times a day.

If the prostate and vesicles are free of infection and the pain persists, it might be well to suggest fixation of the testicles in the scrotum by an open operation.

EFFECTS OF PHENOLPHTHALEIN ON KIDNEY

To the Editor:—Kindly tell me whether there is any evidence to show that the normal or diseased kidney is injured by the prolonged use of phenolphthalein in various combinations. Please omit name.

M.D., Connecticut.

ANSWER.—While phenolphthalein has been generally considered a nontoxic drug, the enormous increase in its use in the form of various proprietary combinations is bringing about a modification of this attitude toward the substance. This fact was called to the attention of the readers of THE JOURNAL in an article, "Phenolphthalein as a 'Patent Medicine,'" published, April 29, in the Bureau of Investigation's department. This article stated in part: "Among its disadvantages is a degree of variability in action, small doses sometimes acting excessively, when at other times a larger dose will fail to act. It may cause, in addition to purgation, colic, rapid pulse, difficult breathing, and even collapse. Hydrick as long ago as 1914 reported a case of albuminuria lasting from one to three days following the administration of phenolphthalein in doses of from one to two grains. Fuerbringer in 1917 reported a case of poisoning following the taking of about nine grains of phenolphthalein by a woman who developed cardiac weakness, a rapid, intermittent, irregular and thread-like pulse, with irregular respiration and dyspnea and some mental confusion. Later the patient developed a trace of albuminuria and an almost total anuria. Holz has reported observing severe gastrointestinal disturbances, hematuria, chill and pain suggesting renal stone colic."

Susceptible persons occasionally have urticarial and erythematous eruptions following the use of phenolphthalein. In the latter type, peculiar polychromatic eruptions on the skin with bullous, vesicular and eroded lesions of the mucosa and genitalia are provoked. These lesions leave pigmented areas, which may persist for months or years.

BULBAR PARALYSIS

To the Editor:—A sister-in-law of mine in Iowa, aged 54, in fair health, able to do her housework, in August of 1932 consulted several physicians and a well known clinic in regard to her health and particularly because of occasional spells of difficult swallowing and attendant fear of serious trouble or possible death. After a thorough examination, general and neurologic, a diagnosis of bulbar paralysis of the chronic poliomyelitic type was made. This condition apparently has been very slowly progressive, and at present she has been enjoying a period of remission. A destructive arthritis accompanies this condition but is independent of the main complaint and preexisted some ten or more years. I am particularly interested in an opinion as to treatment, palliative or curative, if known, also as definite a prognosis as can be given. If the disease causes a fatal termination, and if treatment is of no avail, is it reasonable to suppose that the patient will eventually become bedridden and the difficulty in swallowing result in general exhaustion? A final question: Is the end peaceful or attendant with pain requiring opiates? Please omit name.

M.D., Washington.

ANSWER.—A bulbar palsy cannot be treated symptomatically. If difficulties in swallowing occur, tube feeding may be resorted to. Death usually occurs from an aspiration bronchial pneumonia, although sometimes inanition may be the final cause of death. The end is often disagreeable, as consciousness persists in spite of difficulties in respiration and swallowing. Opiates usually hasten the end because of their depressing effect on respiration. It might be stated that the diagnosis of chronic poliomyelitis at the age of 54 localized in the medulla with progression has probably been made for a vascular disease affecting the medulla.

USE OF SILVER NITRATE IN URETHRA

To the Editor:—For the treatment of gonorrheal urethritis by means of topical applications through the urethroscope when there is a folliculitis, I have always used 2 per cent silver nitrate. Is this the usual strength employed? Please omit name.

M.D., Ohio.

ANSWER.—If the application to protruding follicles is confined to these prominences by controlling the procedure through a urethroscope, silver nitrate solutions of any concentration may be used. Treating extensive areas of the urethral mucosa with high per cent silver solutions is apt to lead to the formation of urethral strictures.

SO-CALLED ASEPTIC URETHRAL DISCHARGE

To the Editor:—In THE JOURNAL, May 20, in answer to a query, you state that "an aseptic purulent discharge from the urethra is as a rule secondary to chronic congestion of the prostate and seminal vesicles." While the gonococcus has been definitely excluded as the offending organism, sufficient evidence has not been adduced to prove the urethral discharge sterile in this case.

A urethral discharge of this nature is usually due to chronic infection of the prostate and seminal vesicles, and a smear showing over 20 pus cells to the high power field tends to confirm the diagnosis. A fresh specimen of prostate secretion showing from 20 to 80 per cent pus will often show only 20 pus cells or less to the high power field, when smeared, fixed and stained. For this reason it is well for the urologist to examine the fresh secretion microscopically before making a smear for the laboratory. In these infections, the colon bacillus is often the offending organism, though foci in distant parts of the body may be responsible. Old strictures and chronic infections of Cowper's glands are not infrequently found, even with a negative history. Either of these conditions may cause a chronic urethral discharge.

The treatment of chronic infection of the prostate and seminal vesicles, unless tuberculous in origin or complicated by malignancy, consists of thorough though gentle massage, deep irrigations and the passage of sounds. Sounds are indicated independent of the presence of stricture so as to insure emptying the prostatic ducts, the orifices of which at times become plugged with purulent or caseous material. Hydrotherapy and diathermy are useful adjuncts. Infection tends to recur, especially if foci of infection, as in the teeth or tonsils, otitis media or cowperitis, are not removed.

I do not agree with your statement that successful evacuation of the seminal vesicles can be accomplished only by the use of a club-shaped instrument. It requires thorough training and practice to enable one to empty the seminal vesicles properly, or the prostate gland for that matter. The use of any instrument for this purpose is fraught with danger. It must be borne in mind that sterile pus from the prostate as well as from the kidney may be due to tubercle bacilli. While symptoms of tuberculosis of the prostate and genital tract are often elicited and confirmed by careful examination, the final diagnosis depends on guinea-pig inoculation or potato culture.

I read Queries and Minor Notes with interest and not without benefit.

J. GREGG SMITH, M.D., Portsmouth, Va.
Lieutenant Commander, M. C., U. S. Navy.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

ALASKA: Juneau, Sept. 5. Sec., Dr. Harry C. DeVighne, Juneau.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written.* Boston, Chicago, Cleveland, New York, Philadelphia, St. Louis and San Francisco, Oct. 28. *Oral.* New York, Dec. 15-16. Application must be filed before Sept. 1. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: The examinations will be held in various cities of the United States and Canada, Dec. 9. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OTOLARYNGOLOGY: Boston, Sept. 16. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* The examinations will be held at centers where there are five or more candidates, Sept. 13-15. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

NEW HAMPSHIRE: Concord, Sept. 14-15. Sec., Dr. Charles Duncan, State House, Concord.

NEW YORK: Albany, Buffalo, New York and Syracuse, Sept. 25-28. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, Room 315 Education Bldg., Albany.

OKLAHOMA: Oklahoma City, Sept. 12-13. Sec., Dr. J. M. Byrum, Mammoth Bldg., Shawnee.

PUERTO RICO: San Juan, Sept. 5. Sec., Dr. O. Costa Mandry, Box 536, San Juan.

WISCONSIN: *Basic Science.* Madison, Sept. 23. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee.

California February-March Examination

Dr. Charles B. Pinkham, secretary, California Board of Medical Examiners, reports the written examination held in Los Angeles, Feb. 28-March 2, 1933. The examination covered 9 subjects and included 90 questions. An average of 75 per cent was required to pass. Sixty-four candidates were examined, 57 of whom passed and 7 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1932)	79.2, 83.4, 88.6
Stanford University School of Medicine		(1932)	88.1
University of California Medical School		(1932)	85.9
University of Colorado School of Medicine		(1931) (1932)	81.4, 80, 81.4
Yale University School of Medicine		(1931)	81.9, 84.3
George Washington University School of Medicine		(1932)	83, 83.2
Howard University College of Medicine		(1931)	85
College of Physicians and Surgeons of Chicago		(1906)	89
Northwestern University Medical School		(1932)	78.4, 79.4,* 79.9,
Rush Medical College		(1928) (1933)	79.1, 83.9, 87.7 (1932) 76.1, 85.9
Indiana University School of Medicine		(1932)	80.7
State University of Iowa College of Medicine		(1932)	82.8
University of Michigan Medical School		(1931) (1932)	84.9 81.1
University of Minnesota Medical School		(1932)	80.7*
St. Louis University School of Medicine		(1932)	80.4, 80.9, 81.8
Washington University School of Medicine		(1931)	88
Creighton University School of Medicine		(1932)	82.1
University of Nebraska College of Medicine		(1932)	82.6
Cornell University Medical College		(1931)	83.9
University of Oregon Medical School		(1932)	79.4, 80.1, 81.8, 83, 83.7, 84.8
Jefferson Medical College of Philadelphia		(1928)	79.1
Temple University School of Medicine		(1932)	76, 78.2, 78.4, 80.7, 83.6, 83.7
Woman's Medical College of Pennsylvania		(1932)	83.6
University of Tennessee College of Medicine		(1931)	85.3
University of Texas School of Medicine		(1932)	83.7
University of Wisconsin Medical School		(1932)	79.7, 84.7, 85.4
McGill University Faculty of Medicine		(1924) (1927) (1932)	83.7, 81.2, 82.6
Medizinische Fakultät der Universität Greifswald, Germany		(1920)†	76.3

College	FAILED	Year Grad.	Per Cent
Northwestern University Medical School		(1933)	72
University of Illinois College of Medicine		(1931)	71.6
Laval University Medical Faculty		(1912)	62.6
Karl-Franzens-Universität Medizinische Fakultät, Austria		(1928)	65.6
Regia Università di Roma degli studi Facoltà di Medicina e Chirurgia		(1928)	58.1
Charkovsky Universitet, Russia		(1923)†	66.7
Psycho-Neurological Institute Medical College, Russia		(1917)†	69.8

Fourteen physicians were licensed by reciprocity and 2 physicians were licensed by endorsement from January 19 to April 13. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College		(1927)	Iowa
State University of Iowa College of Medicine		(1925)	Iowa
University of Minnesota Medical School		(1928)	Minnesota
Washington University School of Medicine		(1907) (1925)	Arizona, North Dakota, (1929) Washington
University of Nebraska College of Medicine		(1905)	Nebraska
Bellevue Hospital Medical College, New York		(1896)	Tennessee
Columbia Univ. College of Physicians and Surgeons		(1923)	New York
University of Buffalo School of Medicine		(1931)	New York
Western Reserve University School of Medicine		(1923)	Ohio
University of Pennsylvania School of Medicine		(1926)	Hawaii
University of Tennessee College of Medicine		(1931)	Tennessee
Medical College of Virginia		(1931)	Virginia

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Harvard University Medical School		(1928)	N. B. M. Ex.
St. Louis University School of Medicine		(1906)	U. S. Army

*This applicant has received an M.B. degree and will receive an M.D. degree on completion of internship.

†Verification of graduation in process.

Minnesota April Report

Dr. E. J. Engberg, secretary, Minnesota State Board of Medical Examiners, reports the oral, written and practical examination held at Minneapolis, April 18-20, 1933. The examination covered 12 subjects and included 60 written questions. An average of 75 per cent was required to pass. Thirty-two candidates were examined, all of whom passed. One physician was licensed by reciprocity and 3 physicians were licensed by endorsement. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Northwestern University Medical School		(1931)	91.4
Indiana University School of Medicine		(1930)	87.2
Harvard University Medical School		(1929)	90.1
University of Minnesota Medical School		(1932)	81.3*
Univ. of Nebraska College of Medicine		(1931) (1932)	84.1,* 84.1,* 84.4,* 84.6, 85.4,* 86.6,* 86.6,* 87.3* 87.3,* 89,* 89.1, 90.2,* 91.4, 92.2,* 93.6, (1933) 85.3,* 87.4, 87.6, 89.3 93.4, 86.3
Columbia University College of Physicians and Surgeons		(1932)	85.5
University of Cincinnati College of Medicine		(1931)	88
Temple University School of Medicine		(1928)	89.6
University of Alberta Faculty of Medicine		(1927)	88.3
University of Manitoba Faculty of Medicine		(1929)	91.2
University of Toronto Faculty of Med.		(1929) (1930)	93.6, 91.4

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Washington University School of Medicine		(1931)	Wisconsin

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Rush Medical College		(1932)	N. B. M. Ex.
University of Minnesota Medical School		(1932, 2)	N. B. M. Ex.

*This applicant has received an M.B. degree and will receive an M.D. degree on completion of an internship.

Book Notices

Electrosurgery. By Howard A. Kelly, M.D., LL.D., F.A.C.S., and Grant E. Ward, M.D., F.A.C.S. Cloth. Price, $7. Pp. 305, with 382 illustrations. Philadelphia & London: W. B. Saunders Company, 1932.

Electrosurgery opens up a vista, these authors believe, destined in no small measure to replace scalpel, ligature and hand contacts with wounds, as well as notably to pare down the number of cases listed as "inoperable" by skilled surgeons. Too much time is not wasted in this volume in preliminary and theoretical discussions of the various effects on tissues that can be brought about by the use of various currents. However, the tissue changes produced by electrodesiccation and "acusection" are clearly differentiated and their means of attainment and clinical indications defined. Thereafter the volume is divided into topical electrosurgery; chapters are given to the skin, oral cavity, otolaryngology, thyroid, thorax, breast, abdomen, gynecology, urology, proctology and the central nervous system. Anesthesia, preparation of the patient and postoperative care are covered. In other words, this is a manual, the most complete one in any language, covering the use of electrosurgery in the various regions. This book is convenient in teaching and invaluable as a guide to those interested in the use of electricity in surgical operations.

Intracranial Tumors. By Percival Bailey, Professor of Surgery, University of Chicago. Cloth. Price, $6. Pp. 475, with 155 illustrations. Springfield, Illinois: Charles C. Thomas, 1933.

This interesting volume is a series of twenty clinicopathologic lectures, elaborated into book form. In the first three chapters the author discusses tumors in general, giving those anatomic and physiologic facts which he has found of value in neurologic diagnosis. Fifteen chapters are devoted to various types of tumors, beginning with acoustic neurinoma, then hypophyseal adenomas and craniopharyngiomas, and so on. In all these chapters, cases are reported which were demonstrated in these lectures. The last three chapters are devoted to gen-

eral diagnosis, differential diagnosis and treatment. The book contains much valuable information. The author has devoted most of his time in recent years to a study of the pathology of brain tumors and is one of the recognized authorities on this phase of the subject. He has developed a fondness for collecting brain tumors, as he stated at the international neurologic congress in Berne in 1931, as others have a fondness for collecting butterflies. This point of view has colored his book to such an extent that it has led him into difficulties. The book, as he states in his preface, is for students; yet, by his overemphasis of the pathologic point of view it will inevitably confuse students, since the titles of his chapters from 4 to 18 are all types of tumors, while the subtitles refer to areas of the brain, and one not familiar with the subject might gain the idea that the symptoms are characteristic of certain types of tumor. At times the author realizes this fallacy, when, in chapter 13, after devoting twenty-two pages to an excellent account of oligodendrogliomas, a tumor so rare that Cushing in his 2,023 cases saw only *27* instances, he remarks, "None of the symptoms we have just described is in any way characteristic of this type of tumor." The reason for the arrangement of the chapters is not apparent. It would seem more logical if chapter 10, on encephalic tumors, in which the author gives a general survey of the modern point of view about the pathology of brain tumors, preceded chapters in which he describes the different types of tumors.

The chapters on pituitary tumors and glioblastoma multiforme are particularly valuable, since the author has incorporated in them his own studies and views on these types to which he has devoted special attention; but in these chapters, as well as in all the book, the author has seriously handicapped himself by his dislike of glazed paper (as he states in his preface), on which alone photomicrographs and roentgenograms may properly be reproduced. Certainly since the author is emphasizing pathology, it would have been most desirable had he reproduced microscopic sections accurately, either by photomicrography or by such masterly drawings as were made by Horn and others in Brödel's laboratory. The same criticism must be made of the drawings of patients. Reproductions of good photographs certainly would be far better than such drawings as are shown on pages 89, 114, 174 and 315, which seem to be little better than caricatures. Just why the author has himself made all the sketches of roentgenograms is not apparent, for they are so crudely done that even one experienced in reading plates can make little out of them. These sketches add nothing to the text. There are a distressingly large number of errors which should have been picked up in the proofreading, and it is to be hoped that a future edition will contain a more complete index.

There is so much useful information in this book that it seems a pity it has not been arranged in more accessible form; but it should be in the library of all neurologic surgeons, all students both of neurology and of neuropathology. As an example of the publisher's art, the book has all the fine qualities present in books from the Thomas press.

Études cliniques de syphiligraphie. Par Ernest Schulmann, médecin des Hôpitaux de Paris. Préface du Docteur A. Sézary. Paper. Price, 40 francs. Pp. 290, with 18 illustrations. Paris: Masson & Cie, 1932.

This is not a complete treatise on clinical syphilis but a discussion of various important and interesting problems connected with the diagnosis, prophylaxis and treatment of the disease. The author has divided his work into fifteen compact, readable chapters. The first deals with the proper method of obtaining a history from the patient, pointing out the voluntary and the unintentional errors. The diagnosis of the chancre is discussed, medicolegal aspects, the importance of dates in the history of the patient, how to avoid errors in chronology, and its bearing on the prognosis and on the type of treatment best suited to the case. The second chapter contains a simple, clear treatment of the question of infectivity before the chancre is observed and the contagiousness of occult syphilis. In the chapters that follow, the author studies critically the clinical forms of syphilis without chancre, the evolution of syphilis of the central nervous system without alteration of the spinal fluid, pruritus and syphilis, syphilitic asthenia, syphilitic gastric ulcer, the significance of fever in syphilis, zoster and syphilis, syphilis manifested only by serologic evidence, sterility and syphilis, the complication of syphilis with tuberculosis, natural immunity in syphilis, and myxedema and syphilis. These subjects are thoroughly covered and are made more impressive at many points by illustrative case histories. The book is excellently printed, the illustrations are clear, and the subject matter has been presented in a conservative and practical manner. It should be read by every practitioner, particularly the dermatologist and syphilologist.

The Nutritive Value of the Banana. Report of Researches Conducted and Supervised by the Institute of Practical Arts Research Laboratories of Physiological Chemistry, Teachers College, Columbia University. By Walter H. Eddy, Ph.D., Professor of Physiological Chemistry, Teachers College, Columbia University. Paper. Pp. 37. New York: Bureau of Publications, Teachers College, Columbia University, 1933.

This summarizes the nutritive value of the banana, including chemical composition, character of the protein, effect on intestinal flora, acid-base value of the minerals, hematopoietic properties, effect on calcium absorption, vitamin content, and digestibility. The banana is a good source of calories, of "quick energy"; its protein is of good value, the carbohydrates are well tolerated in sprue and celiac disease and they are corrective to a considerable degree in these two conditions. The banana stimulates intestinal growth of gram-positive aciduric types and opposes development of colon forms. It effects increase of volume of the stools, producing a mild laxative action, and contributes significant quantities of calcium, magnesium, phosphorus, sulphur, iron and copper. It has an alkaline reaction to offset acidosis of acid diets, has red blood cell regenerating potency, increases utilization of calcium, is a good source of vitamins A, B, C and G, is an excellent milk modifier for infant feeding, and when ripe is almost completely digestible and is well tolerated by persons of all ages.

Opuscula selecta Neerlandicorum de arte medica. Fasciculus undecimus quem curatores miscellaneorum quae vocantur Nederlandsch Tijdschrift voor Geneeskunde collegerunt et ediderunt Amstelodami Sumptibus Societatis. Van Helmont, Gaubius, Schroeder van der Kolk. Cloth. Pp. 359, with illustrations. Amsterdam, 1932.

This volume of republications with translations of Netherlandish medical classics brings contributions illustrating the history of the doctrine of vitalism in medicine. Samples of writings on vitalism by three Netherlandish physicians are reprinted in the original Latin or Dutch and in German translations: Johannes Baptista van Helmont, Hieronymus Davidus Gaubius, and J. L. C. Schroeder van der Kolk.

J. B. van Helmont (1577-1644), the founder of the iatrochemical school in medicine, was a pioneer student of gases. He is said to have used first the word "gas." He held that each physiologic process is due to a special gas which is governed by a special spirit under the supreme guidance of a sensory-motive soul ("blas"). He expressed certain original ideas about immunity and has been credited with the following happy anticipatory pronouncement of the properties of convalescent serum in infections: "For he who has once recovered from that disease has not only obtained a pure balsaamical blood, whereby for the future he is rendered free from any recidivation of the same evil, but also infallibly cures the same affection in his neighbour . . . and by the mysterious power of Magnetism transplants its balsaam and conserving quality into the blood of another." Van Helmont is represented in this book by two tracts, one entitled Archeus Faber ("the internal overseer of the semen") and Spiritus Vitalis ("vital spirit"). The Latin form is taken from his Ortus Medicinae, Amsterdam, 1648, and the German from the translation, published in Sultzbach in 1683 under the title Aufgang der Artzney-Kunst.

Gaubius, or Gaub (1705-1780), a pupil of Boerhaave, was professor of chemistry and medicine in Leyden. His Institutes of Medical Pathology was for a long time a favorite textbook. He claimed that Haller's irritability is due to a pathologic increase of "vital power." The book before us contains reprints of his Sermo Academicus de Regimine Mentis Quod Medicorum est (The Influence of the Soul in Healing), Leyden, 1747, in Latin and a fresh German translation by L. Hellmann of the Dutch edition in 1775.

J. L. C. Schroeder van der Kolk (1797-1862) is represented by a reprint in the original Dutch and in the German translation by J. F. H. Albers of his address in 1835 entitled On the Difference Between the Dead Forces of Nature, Vital Forces and Soul.

Portraits of the three physicians and the title pages of their publications are reproduced. F. M. G. De Feyfer writes a comprehensive introduction in which he reviews the various forms of vitalism in medicine from ancient times down to our own days. All who are interested in the doctrines of vitalism —the belief in a supranatural power or living principle which is not the function or manifestation of matter—will welcome this volume, which is a valuable addition to the literature of medical history.

Surgical Pathology of the Skin, Fascia, Muscles, Tendons, Blood and Lymph Vessels. By Arthur E. Hertzler, M.D., Professor of Surgery, University of Kansas. Hertzler's Monographs on Surgical Pathology. Cloth. Price, $5. Pp. 301, with 260 illustrations. Philadelphia: J. B. Lippincott Company, 1931.

This is a new volume of Hertzler's monographs and deals with the surgical pathology of the skin, fascia, muscles, tendons, blood and lymph vessels. The book is divided into three parts. Part I deals entirely with the diseases of the skin. Part II deals with diseases of the fascia, muscles and tendons, and part III considers diseases of the blood and lymph vessels. A little more than half of the volume is devoted to diseases of the skin. Of the ten chapters in the work, five are devoted to the skin. The author has found that in his clinic more patients present themselves with hopeless malignant growths the result of neglected or maltreated simple lesions of the skin than from cancer of the uterus, mammary gland or lip. He emphasizes that adequate early treatment of these simple lesions would rid these patients of their disease but that only too often this has not been done and the patient comes because of recurrence. He points out that it is the tiny lesions which are important and are serious menaces to the patient, with ultimate danger to his life. In this connection and for this reason, melanotic lesions have received special attention. He has attempted to classify them to harmonize with his clinical experience. He says that algebraic symbols would be quite as useful as the terms now employed, and that if one can clarify the clinical problems by making subdivisions, on either a morphologic or a clinical basis, he is justified in doing so even though the fundamental anatomic factors remain obscure. He believes that Virchow was right, in a measure, in dividing melanomas into two groups, those derived from epithelial cells and those derived from connective tissue. The author believes one might better say that the one tends toward development into epithelial and the other into connective tissue, though melanomas are never epithelial and never connective in origin. They are derivatives of embryonal rests and remain outlaws throughout life. One quality of melanotic tumors, he says, has failed of general recognition. That is that the connective tissue surrounding the nevus cells never attains the full development of acidophilic tissue. The degree of this abnormality is a measure of the likelihood of subsequent malignant development. As a useful clinical classification he divides melanomas into:

A. Benign melanotic lesions:
   1. Multiple.
   2. Solitary.
B. Malignant melanotic lesions:
   1. Melanomas:
      (*a*) Spheroidal cell (melanocarcinomas).
      (*b*) Spindle cell (melanosarcomas).
   2. Chromomas:
      (*a*) Intradermic.
      (*b*) Subdermic.

Each of these is described in detail, both clinically and from the pathologic standpoint. The points are emphasized by reproductions of photographs of actual cases and photomicrographs of sections from these cases.

The chapter on malignant tumors of the fascia is important. The author points out that the commonest of all tumors of the fascia are malignant from the beginning, seldom justify so mild a term as lipomyxosarcoma at any stage, and are pure sarcomas from the beginning. Usually they are of neurogenic origin. These neurogenic sarcomas often are removed surgically by a mere local operation by some physician unfamiliar with their real nature. Sooner or later, local recurrence brings the patient back, and a second, wider, local removal is performed as the local recurrence is his first intimation of the malignant character of the growth. Wide local recurrence followed by mestastases in the lungs usually follows. These cases call for radical amputation. The author properly states that the literature bearing on these tumors is surprisingly meager and that this may account for the mistreatment these tumors generally receive.

The concluding chapter of the volume discusses thrombosis and embolism. In discussing the genesis of thrombosis, he sets forth the results of his experimental studies. His clinical experience has emphasized the fundamental correctness of his conclusions: never ligate a vein when in a state of reaction.

The entire volume is essentially practical. The author has fulfilled his purpose, which is to present the result of observations in the clinic or operating room, with only incidental discussions of observations in the laboratory.

The volume is well illustrated. At the end of each chapter there are references to the literature. The book is written in a direct manner, is interesting to read, and contains a mass of valuable practical clinical facts.

National Health Insurance. By G. F. McCleary, M.D., Deputy Senior Medical Officer, Ministry of Health. Cloth. Price, 6s. Pp. 185. London: H. K. Lewis & Company, Ltd., 1932.

This is an authoritative factual study of health insurance. The brief historical chapters give an excellent, compact view of the origins of such insurance and its tendency to expand in coverage and extent of benefits within each country and to more and more nations. "At first the chief object of insurance was to compensate the disabled worker for loss of wages. . . . The modern tendency is to regard sickness insurance as a means of restoring the disabled worker to health and working capacity." Therefore it becomes rather a medical service, but operated by institutions organized for the earlier purposes. As the medical services increase in importance, conflicts between the physicians and the lay institutions grow sharper. In the more recently established systems of England, France, Norway and some other countries the medical organizations have been able to do away with many of the causes of friction and secure more power in directing the medical service. In these countries there is usually free choice of physician, and questions of medical standards and discipline are largely or wholly matters of the professional association. The English system is described in detail and this constitutes the best account of its workings available. The final summing up is favorable to health insurance, but everywhere the author's conclusions and opinions are separated from his statements of facts and, in the latter, unfavorable as well as favorable features are impartially described.

Ten Years of Obstetrics and Gynecology in Private Practice: A Clinical Report of 1750 Obstetrical and 1345 Gynecological Cases, with Comparative Analyses of Many of the Larger Groups, and Detailed Case Histories of Some of the More Important and Less Common Conditions. By John L. Rothrock, A.B., M.D., F.A.C.S. Cloth. Price, $3. Pp. 209, with 9 illustrations. New York: Paul B. Hoeber, Inc., 1933.

The cases reported and analyzed were attended by the author in the ten year period 1921-1931. The report was prepared in order that comparative figures might be drawn exclusively from private material, a source seldom available. The usual statistical reports are compiled from records of public hospitals, deal with a poorer class of patients, and represent the work of several individuals. Brief sketches of the commoner obstetric problems are presented, with illustrative case histories and short discussions. Detailed treatment of various complications, however, is usually lacking. The view expressed by the author on the treatment of puerperal eclampsia is unfortunate, as he states that "it makes little difference what method one employs, the results will be about the same." One need but review the results of the Stroganoff method versus those following cesarean section in eclampsia to realize the utter folly of such remarks. The author discusses breech presentation in an interesting and instructive manner, but one feels that there is a lack of completeness in all his presentations. This is particularly true of his treatment of the subject of anesthesia in labor. The Kielland forceps are advocated and apparently proved most satisfactory for the mid and high stations of the head. The author also advises the use of the vectis, an obsolete instrument used to aid rotation of the head in occiput posterior presentation. This may prove to be a worthy suggestion, as occiput posterior positions are indeed the bane of the obstetrician's practice. Cesarean section was performed in ninety-five cases in this series, or 5.6 per cent

of the total deliveries. The classic operation was performed thirty-seven times, transperitoneal (low) eleven times and extraperitoneal forty-four times. There was one Porro operation. The transperitoneal technic followed was that described by Hirst, in which the parietal and visceral peritoneum is united before the uterus is opened. The disadvantage of this procedure is the firm adhesion of the uterus to the anterior abdominal wall, a sequel that is not observed following the usual low cervical operation. In two instances during extraperitoneal section the bladder was perforated. In spite of this danger, the author favors this technic as the method of choice in cephalic presentations requiring cesarean section. General anesthesia was used as a routine, usually nitrous oxide and oxygen; local anesthesia was employed once for cesarean section. There was only one maternal death (1.05 per cent) following classic section for premature detachment of the placenta, death occurring from postpartum hemorrhage. Four stillbirths (4.2 per cent) occurred in the cesarean series, two of which were premature. The second portion of the book deals with gynecologic material, which is treated even more briefly than the obstetric. There is too much generalization and too little specific information, especially in relation to treatment. A statistical summary closes each section, revealing an interesting material observed by the author in a decade. It is indeed commendable that the doctor "takes stock" and makes a critical analysis of his work over a period of years, a labor that must prove most profitable to himself and interesting to others in the same field of practice.

Entstehung, Erkennung und Behandlung plötzlich eintretender Kreislaufstörungen, mit einem Sondervortrag, Tod als Operationsfolge. II. Ärztlicher Fortbildungs-Kursus in Bad Salzuflen, 7. und 8. Mai 1932. Boards. Price, 6 marks. Pp. 92, with 2 illustrations. Leipzig: Georg Thieme, 1932.

This small volume is made up of the papers of a symposium on vascular accidents of the pulmonary and general circulation, including those involving the heart, eye and central nervous system, as well as a consideration of shock and death following surgical operations. Each of this series of papers is a short review of the essential points in the subject discussed and can be read with interest and profit, especially that of Klapp on thrombosis and embolism and that of Hiller on apoplexy. The conceptions expressed agree well with those generally accepted in the United States, with few exceptions. The most notable impression gained by the reader is the importance placed on vascular spasm in the pathogenesis of all types of vascular disease. Angiospasm is spoken of with assurance as the cause of many of the visual and cerebral symptoms accompanying vascular disturbances in nephritis, migraine, eclampsia and headaches of other origin, as well as in cerebral vascular accidents. The title of the book definitely describes the subject matter. It is unusual as well as interesting to find included in one volume so many diverse subjects relating to nearly all the special fields of medicine, which are yet so closely related by the etiology and pathogenesis of the lesions in that all are primarily diseases of the cardiovascular system. It impresses by the emphasis laid on the physiology of the circulatory system and its application in all the special fields of medicine.

Procedures in Tuberculosis Control for the Dispensary, Home and Sanatorium. By Benjamin Goldberg, M.D., F.A.C.P., F.A.P.H.A., Associate Professor of Medicine, University of Illinois. With a chapter on Sanatorium Planning by Thomas B. Kidner, and an introduction by David J. Davis, M.D., Ph.D., Dean of the College of Medicine, University of Illinois, Chicago. Cloth. Price, $4. Pp. 373, with 54 illustrations. Philadelphia: F. A. Davis Company, 1933.

The subject matter of this volume has been ready for compiling and editing for many years, and in most respects it has been creditably performed by the author. An introduction by Dr. D. J. Davis, and a chapter on sanatorium planning near the end by Thomas B. Kidner, clothe the work with high standing and authority. The book proper is divided into three main sections, involving the dispensary and the sanatorium system used in Chicago, with a smaller section on home treatment in between. The chapters on medical education and the general hospital and tuberculosis merit high praise. The housing of the tuberculous in special wings of general hospitals, although appearing radical at present, will undoubtedly be an accomplished fact within the coming generation. Most of the material, however, is similar to that appearing in the bulletins and records of the Chicago Municipal Tuberculosis Sanitarium since its founding in 1915, with little or no mention of even the authorities who have contributed to the development of the institution. The impression is almost inescapable that the author himself was the dominant force in the movement, although the records appear to show that his rôle was more or less ephemeral. Such an unfortunate impression of "tree-carving" tends to detract from a valuable work of trail-blazing The publisher's work is standard in every respect.

Le pneumothorax bilatéral simultané. Par M. Ascoli, directeur de la clinique médicale de l'Université de Palerme, et M. Lucacer, assistant de la clinique médicale l'Université de Palerme. Préface de F. Dumarest. Collection médecine et chirurgie pratiques, no. 54. Paper. Price, 22 francs. Pp. 102, with illustrations. Paris: Masson & Cie, 1932.

Twenty years has passed since Ascoli and Faguioli first proposed and practiced compression of the diseased portion only of the lung by low intrapleural pressures and, its corollary, bilateral simultaneous pneumothorax. The opposition of Forlanini, who advised complete collapse of the diseased lung and restricted it to one-sided disease, delayed the development of this method. Since then, the physiology of respiration has become better understood and the indications for the choice of patients suitable for bilateral collapse have improved. Ascoli and Lucacer in this little book furnish, as Dumarest says in the preface, the "indispensable guide" to phthisiotherapeutists who employ this treatment. As the authors caution, the treatment should be reserved to patients in a fully equipped institution and to specialists in the care of the tuberculous. The basic principles of the physiopathology of the respiratory function are thoroughly discussed and to one who has not followed recent literature present some surprising new ideas. The best indication for the method occurs when, after compression of the more diseased lung, new or old lesions become active in the opposite lung. Bilateral pneumothorax, therefore, increases the possibility of success of unilateral collapse of the lung. The contraindications, technic, conduction of treatment and complications are fully discussed. The authors do not include their own figures in the results, which are good in about 25 per cent of the cases. In an appendix they discuss primary contralateral pneumothorax, initiated by Ascoli when pleural adhesions prevent pneumothorax of the actively diseased side. Compression of the so-called good lung will sometimes result in improvement of the lesion on the active side, especially when it is combined with a phrenicectomy on the latter side.

How Do Physicians and Patients Like the Middle-Rate Plan for Hospital Care? The Second Year's Experience of the Baker Memorial Unit of the Massachusetts General Hospital, Boston. Introductory Statement. By C. Rufus Rorem, Ph.D. Attitudes of Boston Physicians Toward the Baker Memorial. By Clyde D. Frost, M.D. The People Admitted to the Baker Memorial. By Elizabeth Richards Day. Paper, Pp. 53. Chicago: Julius Rosenwald Fund, 1932.

The middle-rate plan for hospital patients was placed in operation by the medical staff and administration of the Baker Memorial Unit of the Massachusetts General Hospital, Boston, March 3, 1930. It is stated that this plan is essentially a method by which the physician, patient and hospital unite to reduce the total cost to the patient for hospitalized illnesses without interfering with the quality of service. In a summary of the first year's report, the general principles of the middle-rate plan were summarized as: (1) offering moderate rates for bed care and for special services in a hospital unit large enough to facilitate economical administration; (2) arranging cooperation with the medical staff whereby moderate fees were charged for professional services; (3) unifying, by consent of the medical staff, all financial dealings with the patient under the hospital administration, so that the patient is not presented with two or more independent bills for hospital and professional care respectively, but with a single bill, collected by the hospital, which in turn passes over to the physician his agreed fee; (4) endeavoring to minimize the amount and the costs of special nursing; (5) seeking to provide all the service at cost, without charity and without profit. For the year ended Feb. 29, 1932, 3,326 patients paid an average of $63 each to the attending medical staff. Special nursing cost averaged $18.44 for the entire number of patients; but, since only 519 required such service, the average was raised to $116 per case. It is stated that twelve physicians believed that the scale of fees fixed by the plan was satisfactory. Three, however, qualified the statement by saying "except for special cases." The chief criticism

which was frequently expressed was concerning the limited fee for long term cases and those requiring frequent consultation. It is plain that the physicians of Boston have assumed a liberal attitude toward this experiment. At first some objected to the plan on the ground that it tended to lower professional fees. Now they admit that the public deserves good medical care at prices it can afford to pay. The authors state that physicians serving at Baker Memorial Hospital and representative medical men in Metropolitan Boston concur in the belief that the middle-rate plan is a valuable experiment and that if it is successful it is likely to be undertaken elsewhere. In another section of the report it is stated that during the past two years a similar plan has been introduced at Grace Hospital, Detroit, Sydenham and Mount Sinai hospitals, New York, and Morton Memorial Infirmary, Louisville, Ky. It appears from the financial statement that the facilities provided under this plan have not been utilized sufficiently to make the plan self sustaining. The deficit during the first year of operation was $87,143.66. The second year the deficit was $87,566.96. This means that the ratio of income from patients to the net operating expenses was 74.1 per cent the first year and 81 per cent the second year. Under such conditions one cannot understand how a hospital can continue a plan of this nature without endowment or other means of meeting the deficit.

Arbeit und Gesundheit: Sozialmedizinische Schriftenreihe aus dem Gebiete des Reichsarbeitsministeriums. Herausgegeben von Professor Dr. Martineck, Ministerialdirigent im Reichsarbeitsministerium. Heft 22: Nervöse und seelische Störungen bei Teilnehmern am Weltkriege, ihre ärztliche und rechtliche Beurteilung. Von Dr. Karl Weiler, Facharzt für Psychiatrie. Teil 1: Nervöse und seelische Störungen psychogener und funktioneller Art. Paper. Price, 6 marks. Pp. 222, with 30 illustrations. Leipzig: Georg Thieme, 1933.

Dr. Weiler has made an intensive study of organic and functional mental diseases among the participants in the World War (Germany). His study is to be embraced in two volumes. This monograph is the first volume; in it the author gives consideration to nervous and mental disorders, organic and functional. He also discusses the legal aspect and shows familiarity with both subjects. In the second volume, which will follow at a later date, the dementias will be discussed. The purpose of the present volume is to help the examiners for the German veterans' bureau to diagnose correctly claimants with nervous and mental disorders and to evaluate the influence that service in the World War had on these diseases and also to what extent the claimants are disabled for gainful occupation. The author has reviewed 200,000 case records from a district in Bavaria, which included the city of Munich and surrounding counties. He gives a short treatise on the different types of nervous and mental disorders. It is his opinion that the activities and incidents (excluding direct nerve and brain injuries) during the World War, in most of the cases, were not the cause of the mental upset but just aggravating factors in persons who had a defective personality make-up. He reviewed the psychiatric experience of former wars (the war of 1870-1871, the Russo-Japanese war and the Balkan war of 1912-1913). Part of the book is used to detail his opinion regarding legislation for disabled service-connected veterans, especially the procedure of handling the applicants and the part the examining physician plays in the whole procedure. There is a short discussion on hyperthyroidism and the associated nervous and mental disorders. Reference is made to the influence of alcohol, nicotine and syphilis on mental disorders. There is a paragraph concerning somatic diseases accompanied by mental symptoms. The author mentions as a fact that the outlook for compensation may delay in many instances the improvement of the claimant's symptoms; he gives it a special term, "rentenneurose" (compensation neurosis). In the summary he states that all the disabilities seem to be magnified in a claimant if there is a prospect of obtaining compensation and he advocates legislation to make it imperative for the management of industrial activities to employ a small percentage of partially disabled war veterans in their plants and give them full pay even if their work is below par. It appears that he hopes in that way to develop a mental attitude of self dependence in the veteran and lessen his feeling for the need of paternalistic government aid. The monograph has little appeal for the general practitioner. Its chief interest lies in the field of those engaged in the adjudication of the ex-service man's problems. The book gives evidence of painstaking investigation and careful thought in its preparation. There are thirty graphic charts and many statistical tables in the book, which are helpful in interpreting the text.

British Experience with Unemployment Insurance: A Summary of Evidence Taken by the Royal Commission on Unemployment Insurance, Part V.: Financial Aspects. Monograph 11 in a Series on Social Insurance. Paper. Pp. 47. New York: Metropolitan Life Insurance Company, 1933.

British Experience with Unemployment Insurance: A Summary of Evidence Taken by the Royal Commission on Unemployment Insurance, Part VI.: Economic and Social Effects. Monograph 12 in a Series on Social Insurance. Paper. Pp. 54. New York: Metropolitan Life Insurance Company, [n. d.].

These monographs give a compact survey of the exhaustive evidence taken and reports of the royal commission. There has been constant change in the direction of extension of benefits and expansion of coverage until deficits compelled some restrictions in 1931. The committee was forced to recognize that "it is impossible satisfactorily to base the current finances of a scheme of insurance against unemployment upon a theoretical estimate of the average rate of employment over a number of years." The question of meeting the deficits caused by the present depression received a number of answers, all admittedly unsatisfactory. There was much disagreement as to the economic effects on "mobility of labor," "part time employment," "rigidity of wage rates," and "poor relief by local authorities." It was recognized that insurance might "encourage industries to maintain reserves in excess of their maximum requirements, at the expense of the insurance fund." Employers insisted that insurance maintained wages so high and increased cost of production through contributions so as to affect international competition. There seemed to be general agreement only on the general proposition that insurance offers a far better way of providing relief for the unemployed than anything else that has been suggested and therefore no one proposed its abolition. Both majority and minority reports, while offering many minor changes, did not propose any drastic alterations in the existing law.

Diagnóstico y tratamiento del cáncer. Editado por la Liga contra el Cáncer. Paper. Pp. 255, with illustrations. Havana: La casa Montalvo-Cardenas, 1932.

This treatise, edited by the League Against Cancer of Havana, contains contributions of various authors on the different phases of the diagnosis and treatment of cancer. The first chapter, by Martinez, presents a brief general review of the various theories of causation. There follows a discussion of the pathologic anatomy of tumors and the indications, technic and dangers of biopsy. The chapters on x-rays and radium present a brief review of the development of these therapeutic agents, with their physical and biologic properties. Electrodesiccation and electrocoagulation are briefly discussed. The chapter on the treatment of cancer affecting various organs presents the standard methods of treatment but omits the most recent advances in radiotherapy, particularly such developments as the Coutard technic and radium bomb therapy. This compilation on the diagnosis and treatment of cancer constitutes an accurate and brief review of the subject which should be of interest to the general practitioner. In this respect it fulfils its purpose; namely, the education of the profession in the early diagnosis and treatment of neoplastic disease.

Illustrated Primer on Fractures. Prepared by the Cooperative Committee on Fractures Under Auspices of Section on Surgery, General and Abdominal, and Section on Orthopedic Surgery, in Cooperation with Department of Scientific Exhibit of the American Medical Association. Third edition. Fabrikoid. Price, $1. Pp. 67, with illustrations. Chicago: American Medical Association, 1933.

The third edition of this book (the first and second editions have been reviewed in this department) includes material shown in the fracture exhibits at five annual sessions of the American Medical Association, from 1927 to 1931. Many of the illustrations have been modified or redrawn. All of the legends have been reedited and some of them revised. New material includes fracture of the forearm, carpus, metacarpus and phalanges. The material has been presented in excellent form according to the most approved teaching methods. In addition to fractures, the book contains a discussion on dislocations at the shoulder. The book should be in the library of every practicing physician and surgeon.

Medicolegal

Workmen's Compensation Acts: Award of Compensation as Bar to Malpractice Suit.—Under the Michigan workmen's compensation act (Compiled Laws, 1929, sec. 8454), an employee who is injured under circumstances making some person other than his employer liable for the injury may sue that person to recover damages or may obtain compensation under the act, but he cannot do both. If the employee obtains compensation under the act, his right to recover damages from the person responsible for the injury vests in his employer or his employer's insurer, whoever paid the statutory compensation, who may then sue the responsible person for the damages for which the injured employee might otherwise have sued. Because of this statute, said the Supreme Court of Michigan, an injured employee whose injury has been aggravated by the malpractice of a physician may not, after he has been awarded compensation from his employer, sue the physician for malpractice. The amount the workman can recover under the workmen's compensation act is less than he could recover by suing the physician, and it seems unfair that the physician in such a case should benefit by the provisions of the act, to the employee's disadvantage. That, however, is a matter for the legislature to consider; courts must adhere to the provisions of the laws as enacted.

The absence from the Michigan workmen's compensation act of an express statement concerning liability for the aggravation of an industrial injury by the subsequent negligence of a third person creates some ambiguity. Under similar acts in other jurisdictions, the compensation that an employer must pay his injured employee includes compensation for the consequences of such aggravation of the injury as has been caused by malpractice, in addition to compensation for the original injury. The Supreme Court of Michigan looked with favor on that plan, in *Oleszek* v. *Ford Motor Co.*, 217 Mich. 318, 186 N. W. 719. If and when an employer must pay compensation for the aggravation of the industrial injury by a physician's malpractice, there is no reason why the employee's right to sue the physician should not vest in the employer, just as the employee's right to sue the responsible third person for the original injuries vests in the employer.

It was urged that an employee might be awarded compensation before he discovered the effects of the malpractice and thus be foreclosed from his remedy against the physician. The acceptance of compensation for the original injury, said the Supreme Court, does not constitute an election under the statute. The employee retains his rights against the third person who has injured him, until he has elected to accept compensation, not only for the original injury, but also for the injury resulting from the malpractice. If the evidence of injury resulting from malpractice is not discovered before the expiration of the time limit within which compensation may be claimed under the workmen's compensation act, the employee still has his rights against the physician, even though he may have accepted compensation for the original injury, as distinguished from damages for the aggravation of that injury by malpractice.—*Overbeek v. Nex (Mich.), 246 N. W. 196; Vayda v. De Witt (Mich.), 246 N. W. 199.*

Insurance: Squeezing a Pimple as An "Accidental" Cause of Death.—An insurance policy provided double indemnity if death occurred as a result of bodily injury effected solely through external, violent and accidental means. The insured squeezed a pimple on his face, septicemia developed, pneumonia followed, and he died. In the opinion of the Supreme Court of Minnesota, the evidence warranted the conclusion that the pressure on the pimple for the purpose of expressing the pus was external, violent and accidental means within the terms of the policy and resulted in bodily injury. The insurer pointed out that double indemnity was not payable if death resulted from bodily or mental infirmity or disease in any form, and claimed that the death resulted from an existing infirmity, the pimple. True, said the court, the insured had a pimple, but pimples are common and almost always inconsequential and harmless. Had it not been for the rupturing of the sac of the pimple by pressure, the condition that caused the insured's death would not have arisen. The admission of the testimony of a physician, over objection, that the insured told him that the pimple had been squeezed, was erroneous. A physician may testify as to the present physical condition of his patient, and what the patient said concerning that condition, particularly as to ills, pains and symptoms arising from an accident or sickness, but anything concerning the nature of past events, such as the cause of the injury or sickness, is inadmissible in an action to recover damages for an injury.—*Strommen v. Prudential Ins. Co. (Minn.), 245 N. W. 632.*

When a Physiotherapist Practices Medicine.—The defendant, Mari, was licensed to practice physiotherapy in the state of New York. The statute under which he was licensed provides that a license issued under its authority shall authorize the licentiate to treat diseases under the supervision of duly licensed physicians but shall not permit him to practice medicine. A rule promulgated by the Board of Regents of New York requires a registered physiotherapist to keep a written prescription, signed by a licensed physician, for each patient treated by the physiotherapist, which prescription shall state the diagnosis and the type of treatment ordered. Mari's office and office equipment had all the evidences of a physician's office. A policewoman, who subsequently appeared as a witness for the prosecution, called there. The defendant told her that he was Dr. Mari. At his request she described symptoms. He took her family history. He made "an intimate personal examination," tested her reflexes, looked into her throat and palpated her abdomen. He examined a specimen of her urine and told her he found a trace of albumin in it. He took her blood pressure and was about to take blood for a blood test, but his patient objected and he desisted. Mari then had his patient place her hands under a thermolite. This treatment had continued for about a half hour, when a Dr. Andrei, a licensed physician, entered. He tried to examine the patient, but she refused his services. He nevertheless wrote a prescription for her. Mari was convicted of the illegal practice of medicine, the conviction was affirmed by the appellate division, and he appealed to the Court of Appeals of New York.

To account for the presence of Dr. Andrei in Mari's office, said the Court of Appeals, we must take as true the evidence showing that he was summoned by or for the defendant, Mari. It may be assumed, said the court, that Dr. Andrei telephoned to Mari instructions what to do while awaiting his arrival; it is not contended that such a practice is unusual, but such a practice has no sanction in law. To say that the statute contemplates such a procedure would be to open the door so wide to evasion as to leave the statute a mere futility. It is no defense that Mari acted in good faith or did only what was customary. The only question is whether he violated the statute, and of this there seems to be no doubt. The judgment of conviction was affirmed.—*People v. Mari (N. Y.), 183 N. E. 858.*

Injunction Not Available to Prevent Practice by Holder of Unrevoked License.—By an act of the Tennessee legislature, Private Acts of Tennessee, 1923, chapter 679, Millard I. Hartley was licensed to practice medicine. All persons who at the time of the passage of this act had practiced medicine for ten years or more in any Tennessee county or counties with not less than 12,225 nor more than 12,235 population, according to the federal census of 1920, were licensed by the act to practice within such counties. The act required the state board of medical examiners to issue to any person proving that he was entitled thereto a certificate licensing him so to practice. Hartley had practiced in Johnson and Carter counties for more than twenty years, and the board therefore issued to him a "certificate of permanent license," which Hartley duly recorded in the counties in which he had practiced.

At a later date, the state of Tennessee, at the instance of the Tennessee state board of medical examiners, filed a bill to enjoin Hartley from practicing medicine in the state. This bill was filed under authority of an act entitled An Act to define and provide for the abatement of certain public nuisances, Public Acts of 1919, chapter 158, which declares that the practice of any profession is a public nuisance if the practice of it without a license is prohibited by law and the practitioner holds no license. The chancery court of Carter county, in which the bill was filed, dismissed it, and the state appealed to

the Supreme Court of Tennessee. The bill was based on the theory that Hartley's license was void because the act by which he was licensed was itself unconstitutional and void. The Supreme Court, without considering the constitutionality of the act, rejected this theory. The issuance of a license, it said, is authority for the licentiate to practice. The bill had been dismissed in the court below on the theory that the state board of medical examiners had issued to Hartley a certificate of permanent license and was therefore estopped from denying its validity; but on this theory of the case the court declined to pass. Nor would it pass on the right of the board to concel or revoke Hartley's license, if the license had been wrongfully issued, since the cancellation or revocation of that license was not involved in the proceeding. The act of 1919, authorizing the issue of injunctions to prevent unlawful practice, said the court, applies only to a person engaged in practice without a license, and since Hartley had a license that the board had issued and had not revoked, the act had no application to him. When a board clothed with exclusive power to issue a license exercises that power, the licentiate may exercise the privilege conferred by his license, until his authority to act is lawfully revoked.—*State ex rel, State Board of Medical Examiners v. Hartley (Tenn.), 54 S. W. (2d) 960.*

Workmen's Compensation Acts: Compensation for Loss of Remaining Eye.—In childhood, the petitioner lost the vision of his left eye from disease. His right eye was destroyed at the defendant's plant by an accident arising out of and in the course of petitioner's employment. The industrial injury, plus the loss of the left eye during childhood, resulted in blindness. The trial court awarded compensation only for the loss of the eye destroyed by the industrial injury and the employee appealed to the Supreme Court of Tennessee. He contended that he should have been awarded compensation for permanent total disability. The employee's permanent total disability, said the Supreme Court, was not the result of an injury but of an injury that destroyed the vision of one eye, plus the affliction that destroyed the vision of the other eye. The statute, prescribing as it does compensation for industrial injury only and measuring it by the specific loss of a member regardless of the effect on capacity to work, forbids the addition of the preexisting loss of a member by disease to a subsequent loss of a member through industrial injury, for the purpose of transferring the measure of compensation from the lower to the higher schedule. In prescribing compensation for injury to vision, the legislature did not consider the organs of sight as a unit. Each eye was considered separately, and compensation related to its specific loss; the loss of one eye constituting permanent partial disability and the loss of both eyes constituting total permanent disability. The judgment of the trial court was therefore affirmed.—*Catlett v. Chattanooga Handle Co. (Tenn.), 55 S. W. (2d.) 257.*

Accident Insurance: Sodium Fluoride Poisoning; "Visible Contusion or Wound" Construed.—Schenkat took a quantity of sodium fluoride accidentally, mistaking it for epsom salt. Three hours after taking the poison he died. He was insured under a double indemnity policy, payable if death should result from bodily injury effected solely through external, violent and accidental means, independently and exclusively of all other causes. The policy provided that, except in case of drowning or asphyxiation, the external, violent and accidental means which caused death should be evidenced by a "visible contusion or wound on the exterior of the body." Sahara Schenkat sued the insurer, to recover benefits payable under the policy. At the conclusion of the trial, on a directed verdict in favor of the plaintiff, the court entered judgment, and the insurer appealed to the U. S. circuit court of appeals, seventh circuit.

The evidence showed that the sodium fluoride taken by Schenkat, the insured, produced the following effects: "Insured became violently ill; was nauseated; perspired freely; vomited blood; lips and tongue swollen; became pale; body discolored; marked paralysis; abdomen rigid; suffered great pain." The U. S. circuit court of appeals quoted *Thompson* v. *Loyal Prot. Ass'n*, 167 Mich. 31, 132 N. W. 554, in which the Supreme Court of Michigan held that the following definition of a wound, given by the trial court for the guidance of the jury, was correct, namely: "In legal medicine the word 'wounds' means injuries of every description that affect either the hard or soft parts of the body, and it comprehends bruises, contusions, fractures, luxations, etc. In law the word means any lesion of the body." "We hold," said the circuit court of appeals, "that the plaintiff was entitled to recover under the admitted facts of this case. The insured died as a direct result of bodily injury effected solely through external, violent and accidental means, independently and exclusively of all other causes." As evidence of such a death, the policy required "a visible contusion or wound on the exterior of the body." We hold, said the court, that this evidence was present.—*Mutual Life Ins. Co. of New York v. Schenkat (U. S. C. C. A.), 62 Fed. (2d) 236.*

Evidence: Judicial Notice that Morphine is a Derivative of Opium.—The appellant in this case was convicted on an information which charged her with the sale of six ounces of morphine. She appealed on the ground that the trial court erred in overruling her demurrer by which she contended that the indictment under which she was convicted was fatally defective in that it did not allege that morphine is a salt or a derivative of opium. The United States circuit court of appeals, fifth circuit, held that the allegation was not necessary, since the trial court was entitled to take judicial notice of the fact that morphine is a derivative of opium.—*James v. United States, 61 Fed. (2d) 912.*

Insanity: Admissibility of Lay Testimony.—The opinions of nonexpert witnesses as to the insanity, the mental condition and the capacity of a person charged with crime to distinguish between right and wrong are admissible when such witnesses have had opportunities to observe or converse with such person and when they state their reasons and the facts observed on which they base their opinions. Such opinions, to be admissible, must be limited to conclusions drawn from the specific facts thus disclosed. It is for the jury to determine the weight to be given to such testimony.—*People. v. Witte (Ill.), 183 N. E. 622.*

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Boston, September 18-22. Dr. William P. Wherry, 1500 Medical Arts Building, Omaha, Executive Secretary.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Lucerne-in-Quebec, Canada, September 11-14. Dr. Magnus A. Tate, 19 West Seventh Street, Cincinnati, Secretary.

American Association of Railway Surgeons, Chicago, August 10-12. Dr. Louis J. Mitchell, 29 East Madison Street, Chicago, Secretary.

American Congress of Physical Therapy, Chicago, September 11-15. Dr. F. B. Balmer, 185 North Wabash Avenue, Chicago, Secretary.

American Roentgen Ray Society, Chicago, September 25-30. Dr. Eugene P. Pendergrass, 3400 Spruce Street, Philadelphia, Secretary.

Association of Military Surgeons of the United States, Chicago, September 25-27. Dr. J. R. Kean, Army Medical Museum, Washington, D. C., Secretary.

Colorado State Medical Society, Colorado Springs, September 14-16. Mr. Harvey T. Sethman, 537 Republic Building, Denver, Executive Secretary.

Delaware, Medical Society of, Wilmington, September 26-27. Dr. W. O. La Motte, 604 Medical Arts Building, Wilmington, Secretary.

Idaho State Medical Association, Twin Falls, September 18-19. Dr. Harold W. Stone, 105 North Eighth Street, Boise, Secretary.

Indiana State Medical Association, French Lick, September 25-27. Mr. T. A. Hendricks, 23 East Ohio Street, Indianapolis, Executive Secretary.

Kentucky State Medical Association, Murray, September 11-14. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.

Michigan State Medical Society, Grand Rapids, September 12-14. Dr. F. C. Warnshuis, 148 Monroe Avenue, Grand Rapids, Secretary.

National Medical Association, Chicago, August 13-14. Dr. Walter G. Alexander, 136 West Kinney Street, Newark, New Jersey, General Secretary.

Nevada State Medical Association, Las Vegas, September 29-30. Dr. Horace J. Brown, 120 North Virginia Street, Reno, Secretary.

New England Surgical Society, Boston, September 29-30. Dr. J. M. Birnie, 14 Chestnut Street, Springfield, Mass., Secretary.

Ohio State Medical Association, Akron, September 7-8. Mr. Don K. Martin, 131 East State Street, Columbus, Executive Secretary

Utah State Medical Association, Salt Lake City, September 14-16. Dr. L. R. Cowan, 305 Medical Arts Building, Salt Lake City, Secretary.

Washington State Medical Association, Seattle, August 28-30. Dr. Curtis H. Thomson, 1305 Fourth Avenue, Seattle, Secretary.

Western Branch Society, American Urological Association, Vancouver, B. C., August 3-5. Dr. George W. Hartman, 999 Sutter Street, San Francisco, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

185: 453-600 (April) 1933

Classification of Diseases of Lipoid Metabolism and Gaucher's Disease. L. Pick, Berlin, Germany.—p. 453.
*Spontaneous Subarachnoid Hemorrhage. H. F. Dowling, Baltimore. —p. 469.
Use of Various Gases in Encephalography: Summary of Two Hundred and Ten Cases, Using Simultaneous Displacement Apparatus. F. Liberson, New York.—p. 478.
Neurologic Complications of Serum Sickness. J. B. Doyle, Los Angeles. —p. 484.
Congenital Hemihypertrophy: Report of Eight Cases. E. G. Wakefield and E. A. Hines, Jr., Rochester, Minn.—p. 493.
Hypoglycemic Convulsions with Hypoplasia of Pancreas. H. M. Winans, Dallas, Texas.—p. 500.
Use of Ephedrine During Spinal Anesthesia for Relief of Paralytic Ileus: Therapeutic Fallacy. A. M. Winograd, D. A. Hirsch and R. D. Barnard, Chicago.—p. 506.
Alleged Antagonism Between Digitalis and Diphtheria Toxin. H. Gold and Margaret M. Klumpp, New York, in collaboration with T. D. Slagle.—p. 509.
Acute Angiospastic Retinitis: Occurrence in Cases of Severe Hypertensive and Renal Disease. H. P. Wagener, N. W. Barker and C. F. Burke, Rochester, Minn.—p. 517.
Stenosis of Isthmus (Coarctation) of Aorta: Report of Three Cases with Remarks on Clinical Aspects. E. C. Eppinger and P. A. H. Midelfart, Boston.—p. 528.
*Simple Test for Capillary Resistance: "Flicking" Test. H. W. Jones and L. M. Tocantins, Philadelphia.—p. 535.
Studies of Anemia in Pregnancy: III. Etiologic Relationship of Gastric Secretory Defects and Dietary Deficiency to Hypochromic and Macrocytic (Pernicious) Anemias of Pregnancy and Treatment of These Conditions. M. B. Strauss and W. B. Castle, Boston.—p. 539.
*Agranulocytic Angina (Pernicious Leukopenia): Study Based on Eighteen Cases with Nine Necropsies. T. Fitz-Hugh, Jr., and B. I. Comroe, Philadelphia.—p. 552.
Diaphragmatic Hernia Associated with Secondary Anemia. K. D. Gardner, San Francisco.—p. 561.
*Parenteral Liver Extract Therapy in Treatment of Pellagra: Preliminary Report. R. L. Ramsdell and W. H. Magness, Dallas, Texas. —p. 568.

Spontaneous Subarachnoid Hemorrhage. — Dowling reports twelve cases of spontaneous subarachnoid hemorrhage. He concludes that: 1. A variety of pathologic conditions may cause hemorrhage into the subarachnoid space. 2. The syndrome may present a wide variety of symptoms and signs. 3. In every case of coma of unknown origin, a diagnostic spinal puncture is imperative. 4. Headache is a prominent and sometimes the only symptom. A diagnostic spinal puncture is therefore justified in any case of unexplained headache. The relief of intracranial pressure is the end sought for, whether by repeated spinal drainage, intravenous injections of hypertonic dextrose solution, or frequent doses of magnesium sulphate by mouth. The author's procedure is to perform one puncture for diagnostic purposes and no more for one week (unless marked pressure symptoms require it). He allows this time for the bleeding vessel to attain some degree of repair. After this the patient is given a puncture every three days (or oftener, in the presence of markedly increased intracranial pressure) until the fluid is colorless and the abnormal signs and symptoms have all disappeared. Intravenous injections of dextrose solution and drastic purgation are reserved for cases in which spinal drainage alone fails to give relief.

Simple Test for Capillary Resistance.—Jones and Tocantins describe a test for capillary resistance as follows: A tourniquet is applied from 2 to 3 inches above the elbow for five minutes as for the capillary resistance test. After four minutes, by flicking the middle finger against the distended vein three or four times petechiae appear. A control may be performed above the tourniquet by flicking with similar force, with a resultant erythema, but in most instances no petechiae appear. The authors performed the flicking test in 108 normal persons on whom the capillary resistance test was performed. A comparison brought out the following points: Of the 108 persons, 55 had both negative capillary resistance and flicking tests; 33 had a negative capillary resistance test and also a positive flicking test. In each instance of a positive capillary resistance test there was also a positive flicking test. On the other hand, not all cases in which the flicking test was positive showed a positive capillary resistance test. The total in this group having positive flicking tests was 49 per cent of the normal group. There was an equal frequency of positive flicking tests in persons who gave a personal or family history of hemorrhagic disposition, as in those whose family or personal history was negative. Of thirty patients who gave a history of frequent nosebleed, eighteen showed a positive flicking test, whereas only thirteen showed a positive capillary resistance test. Of seven who stated that they bruised easily, four gave a positive flicking test, while only two gave a positive capillary resistance test.

Agranulocytic Angina.—Fitz-Hugh and Comroe report the data on eighteen cases of agranulocytic angina (pernicious leukopenia) with nine necropsies. All but four are dead, a mortality of 78 per cent. Of these four, only two can be considered cured. The most promising treatment, aside from blood transfusion, seems to be pentnucleotide, although the authors' experience with this substance has not been favorable. It seems more definitely to be useless in chronic cases of the disease. Necropsy study has shown in more than half of the cases thus examined a plentiful supply in the leukopoietic centers of the progenitors of the blood leukocytes. This virtual hyperplasia is in marked contrast to the profound peripheral leukopenia characteristic of the disease and strengthens the previous suggestion of a hypothesis of primary "maturation arrest" rather than primary "aplasia" to account for the hematologic phenomena of the disease. Agranulocytic angina (pernicious leukopenia) seems to be a disease entity, although it is so closely simulated by certain other conditions that its nosologic status may remain debatable until a potent specific therapy is available or some other pathognomonic feature is discovered.

Liver Extract in Treatment of Pellagra.—Ramsdell and Magness treated twenty-two unselected cases of pellagra with liver extract intramuscularly without a death and with rapid marked clinical improvement. They believe that severe cases in either young or old people, often fatal in a short time, can be treated successfully with liver extract. In patients with severe mental depression or marked gastro-intestinal disturbances who refuse to eat, this method of treatment will give quicker results than dietary treatment. It is simple and much easier to carry out than dietary treatment. A combination of liver extract and the usual dietary treatment would prob ably give better results than either alone. The time of hospitalization was greatly reduced. The treatment consisted of rest in bed and a general home diet without any additional foods containing vitamin G. Liver extract number 343 was given intramuscularly in daily doses of 2 cc. The usual site of injection was the deltoid or gluteal region. Practically no inconvenience was experienced from the injections. No other medication of any kind was used. There was a moderate amount of anemia in all cases. In a few cases in which reticulocyte counts were made the highest response was 4.7 per cent. Achlorhydria was present in 81 per cent.

American Journal of Public Health, New York

23: 305-406 (April) 1933

Recognition and Control of Tuberculosis of Childhood. E. L. Opie, New York.—p. 305.
Tuberculosis of Bovine Origin. M. P. Ravenel, Columbia, Mo.—p. 316.
Activities and Trends in Laboratory Field. G. W. McCoy, Washington, D. C.—p. 318.
Current Preoccupations of Health Officers. H. Williams, Baltimore. —p. 323.
Work in Vital Statistics for Public Health. W. F. Willcox, Ithaca, N. Y.—p. 326.
Public Health Engineer's Work. A. Wolman, Baltimore.—p. 329.
Industrial Hygiene. Alice Hamilton, Boston.—p. 332.
Food and Health. H. C. Sherman, New York.—p. 335.
Health Education. I. Galdston, New York.—p. 337.
Trends in Public Health Nursing. Helen C. LaMalle, New York. —p. 339.
Current Work of Section on Epidemiology. H. Emerson, New York. —p. 341.
Suggested Procedures for Presumptive Test in Determination of Coli-Aerogenes Group. C. T. Butterfield, Cincinnati.—p. 343.
Proposed Changes in the New (Sixth) Edition of the Standard Methods of Milk Analysis. R. S. Breed, Geneva, N. Y.—p. 359.

Annals of Medical History, New York

5: 103-204 (March) 1933

Dr. Hall Jackson of Portsmouth. R. L. Jackson, Salem, Mass.—p. 103.
Dr. Guillotin's Idea. J. H. Lloyd, Philadelphia.—p. 129.
Practice of Medicine in Philadelphia in the Eighteenth Century. F. R. Packard, Philadelphia.—p. 135.
History of Laryngology and Rhinology and Influence of America in Development of This Specialty. J. H. Bryan, Washington, D. C. —p. 151.
Introduction to History of Women in Medicine: I. Medical Women Before Christianity. Kate Campbell Hurd-Mead, Haddam, Conn. —p. 171.

Archives of Internal Medicine, Chicago

51: 327-486 (March) 1933

Cataphoretic Velocity of Streptococci as Isolated in Studies of Arthritis. E. C. Rosenow, Rochester, Minn.—p. 327.
Bronchial Disinfection and Immunization: I. Effects in Rabbits of Intrabronchial Injections of Various Chemical Disinfectants. J. A. Kolmer, Philadelphia.—p. 346.
*Productive-Cicatricial Syphilitic Disease of Pulmonary Artery. H. T. Karsner, Cleveland.—p. 367.
*Effect of Drugs on Cardaic Standstill Induced by Pressure on Carotid Sinus. M. H. Nathanson, Minneapolis.—p. 387.
Hyperplastic Sclerosis of Pulmonary Artery and Arterioles: Report of Case with Discussion of Pathogenesis. M. J. Sokoloff and H. L. Stewart, Philadelphia.—p. 403.
Peptic Ulcers (Gastric, Pyloric and Duodenal): Occurrence in Guinea-Pigs Fed on a Diet Deficient in Vitamin C. D. T. Smith and M. McConkey, Ray Brook, N. Y.—p. 413.
Inherent Sensitivity of Skin to Nickel and Cobalt (Allied Elements in Group VIII, Periodic System). S. G. Stewart, Philadelphia.—p. 427.
*Direct Comparison Between Specific and Nonspecific Serum Therapy for Type I Lobar Pneumonia. W. D. Sutliff, M. Finland and T. N. Hunnicutt, Boston.—p. 435.
Nephritic Albuminuria. J. M. Hayman, Jr., and J. A. Bender, Cleveland.—p. 447.
Spontaneous Subarachnoid Hemorrhage. A. L. Osterman, Wheeling, W. Va.—p. 452.
*Oral Administration of Iron in Hypochromic Anemia. C. W. Heath, Boston.—p. 459.

Syphilitic Disease of Pulmonary Artery.—Karsner points out that productive-cicatricial syphilitic disease of the pulmonary artery, i. e., of the Döhle-Heller type, is extremely uncommon but occurs often enough to justify its consideration in clinical diagnosis. Eleven cases, anatomically proved by reasonably liberal interpretation, are now on record. Eight of these would be regarded as clearly established by the most exacting criteria. Gummatous types of lesion about equal the productive-cicatricial type in incidence, but this ratio may be changed as additional cases are reported. The proportion of productive-cicatricial to gummatous lesions is markedly higher in the aorta than in the pulmonary artery. All cases of productive-cicatricial lesions in the main stem of the pulmonary artery show local or diffuse dilatation of the vessel. Associated disease of the smaller pulmonary arteries is by no means constant. Thrombosis is more frequently associated with productive-cicatricial lesions of the pulmonary artery than with the same lesions of the aorta. The anatomic character of the lesion, as it affects both the aorta and the pulmonary artery, is essentially the same. Both the aorta and the pulmonary artery show productive-cicatricial lesions in about half the cases, but this does not of necessity mean that the disease in one vessel is an extension from the lesion in the other vessel. The disease affects the sexes about equally and has been found at the age extremes of 28 and 58 years, with the maximum incidence in the sixth decade. It is associated with cardiac difficulties and ultimately congestive heart failure, and it may exhibit a fairly characteristic roentgenogram. The most frequent murmur is a systolic murmur over the pulmonic area. Occlusion of a main branch of the pulmonary artery appears to have some relation to development and progress of pulmonary tuberculosis on the affected side.

Effect of Drugs on Cardiac Standstill.—Nathanson induced prolonged cardiac standstill by pressure on the carotid sinus in studying the effect of drugs on the rhythmic function of the human heart. He observed that the exaggerated carotid sinus reflex in man could be abolished by atropine. Epinephrine had a powerful effect on the impulse-initiating mechanism of the ventricles and consistently prevented cardiac standstill by the induction of an idioventricular rhythm. The stimulation of cardiac rhythmicity by the administration of epinephrine passed off within an hour after a subcutaneous injection. The effect returned after massage of the site of injection. Ephedrine had no effect on a patient who repeatedly responded to epinephrine with initiation of a ventricular rhythm. Barium chloride abolished cardiac arrest in one patient by the formation of a new center in the auricles and in another by the development of an idioventricular rhythm. Calcium gluconate had no influence on the cardiac standstill. Digitalis definitely prolonged the period of cardiac standstill induced by pressure on the carotid sinus. This effect was abolished by atropine. Caffeine in a therapeutic dose had no effect on the duration of the cardiac arrest.

Comparison of Serum Therapy for Lobar Pneumonia.—Sutliff and his associates made a comparison between the symptomatic effects obtained in early type I lobar pneumonia by the administration of concentrated type-specific antipneumococcic serum and of horse serum globulin solution containing no specific antipneumococcic antibodies. The two preparations were prepared and administered in the same manner. In eight patients who first received nonspecific therapy and later received specific therapy, the greater effectiveness of the latter was obvious. In thirteen specifically treated patients who recovered, the duration of the disease was shorter than in the ten nonspecifically treated patients who recovered. Bacteremia was not present after therapy in any of the sixteen specifically treated patients, but bacteremia remained present in five, appeared for the first time in three and disappeared in two of thirteen nonspecifically treated patients. An extension of the consolidation of the lung was not observed after therapy in any of the sixteen specifically treated patients, but extensions were observed in five of thirteen patients receiving nonspecific therapy. A temporary symptomatic change was observed in each of the patients receiving nonspecific therapy, but the improvement in patients receiving specific therapy was permanent in every instance.

Iron in Hypochromic Anemia.—Heath analyzed eighty-four patients presenting hypochromic anemia with respect to the hematopoietic response to oral administration of iron. The percentage of utilization of orally administered iron, as determined by the total amount of iron gained in the circulating hemoglobin, varies inversely with the size of the dosage. It is possible, during the period of rapid gain of hemoglobin, when iron dosage orally is low, to have as much as 50 per cent of utilization. The average percentage of utilization of iron in the eighty-four patients during the entire period of recovery was 3.4. The percentage utilization of iron in idiopathic hypochromic anemia is less than in uncomplicated hypochromic anemia due to a chronic loss of blood. Patients with idiopathic hypochromic anemia usually require an indefinite continuation of iron therapy. The maintenance dose of iron in these cases is usually smaller than the dose required for maximum blood regeneration in the period of recovery. Toxic symptoms following the oral administration of iron and ammonium citrate not infrequently occur, but the maximum amount of iron administered orally in this form that is eventually tolerated by the patients is, as a rule, from 1 to 2 Gm. daily. The author feels that the influence that the addition of copper to iron may have in the treatment of hypochromic anemia in adults is at the most a minor one and that it is inadvisable to give copper salts as a routine measure in hypochromic anemia in adults. To be certain of giving adequate amounts of iron in hypochromic anemia, it is necessary to give large doses, such as 6 Gm. of iron and ammonium citrate daily, corresponding to 1 Gm. of metallic iron. Ferrous salts can be equally effective in somewhat smaller doses.

Colorado Medicine, Denver

30: 73-118 (March) 1933

Lipiodol Injection of Nasal Sinuses. C. E. Earnest, Pueblo.—p. 77.
Pharyngomaxillary Abscess. F. E. Palmer, Sterling.—p. 79.
Medical Treatment of Disease of Accessory Sinuses. F. J. Peirce and F. H. Prior, Pueblo.—p. 81.
Progress in Otolaryngology. R. Levy, Denver.—p. 85.

30: 119-168 (April) 1933

Doctor, Patient and State. C. E. Cooper, Denver.—p. 122.
Economic Do's and Don't's for the Medical Society. H. T. Sethman, Denver.—p. 135.
Shall We Legislate the Medical School and Its Hospitals into Oblivion? L. V. Tepley, Denver.—p. 139.
Presence of Fluorine in Water Supply of Colorado and Its Relation to Occurrence of Mottled Enamel. C. H. Boissevain, Colorado Springs. —p. 142.

Iowa State Medical Society Journal, Des Moines

23: 187-246 (April) 1933

Hypertension. M. C. Wheelock, Sioux City.—p. 197.
*Management of Some of the More Common Bladder Infections. E. R. Gelvin, Sioux City.—p. 200.
Abscess of Pterygomaxillary Fossa Complicating Otitic Infections. C. C. Grant, Cedar Falls.—p. 203.
Diagnosis and Management of Laryngeal Obstruction. R. E. Russell and H. O. Gardner, Waterloo.—p. 206.
Strategic Position in Treatment of Syphilis. Mary H. Swan, Chicago. —p. 209.

Bladder Infections.—Gelvin, in tracing acute bladder infections, keeps the patient in bed, applies an ice bag to the suprapubic region, orders a bland diet, and gives fluids to the extent of comfort. He believes that at this stage a balsamic, combined with codeine or morphine, is the most soothing type of treatment, and accordingly he gives either 5 minims (0.3 cc.) of copaiba four times a day, or 5 minims of oil of santal four times a day, and one-fourth grain (0.016 Gm.) of codeine every four hours, or one-fourth grain (0.016 Gm.) of morphine as required. Daily enemas should be given, and no instrumentation should be attempted during the first week. By the end of the first week irrigations of the bladder with solution of boric acid may be begun, followed by the instillation of 2 ounces (60 cc.) of a mixture of olive oil and oil of cajeput, or 16 ounces (475 cc.) of olive oil and 4 ounces (120 cc.) of oil of cajeput. During the second week, a rectal examination should be made or, if the patient is a woman, bimanual examination followed by a cystoscopic examination. If the infection is due to the colon bacillus, the author uses methenamine, which he considers almost specific, giving 7½ grains (0.5 Gm.) with 5 grains (0.3 Gm.) of acid sodium phosphate every four hours until the urine is positive for formaldehyde. During the third and fourth weeks, urinary antisepsis should be continued; but, instead of following the boric acid solution irrigation with an oil mixture, 2 ounces of a 5 per cent solution of neosilvol should be instilled. During the fifth and sixth week, the 5 per cent solution of neosilvol should be increased to 7.5 per cent and later to 10 per cent. The bladder is usually entirely normal by the end of from seven to ten weeks. In chronic cystitis or chronic infections, the first step in the treatment is to look for the focus. The use of colonic irrigation or acidophilus culture will frequently clean the colon and lessen its flora. Any chronic constipation should be corrected by appropriate means. A urinary antiseptic should be given constantly, and methenamine is by far the best, unless the invading organism belongs to the coccus family. In using methenamine it is essential that enough be given to obtain free formaldehyde in the urine, the presence of which can easily be determined by adding to a few cubic centimeters of urine 5 minims (0.3 cc.) of a 0.5 per cent solution of sodium phenol hydrogen hydrochloride, 5 minims of a 0.5 per cent solution of sodium nitroperoxide, and an excess of sodium hydrate. A bluish green color is positive for formaldehyde.

Journal of Biological Chemistry, Baltimore

100: 1-378 (March) 1933. Partial Index

Forms of Calcium and Inorganic Phosphorus in Human and Animal Serums: I. Normal, Rachitic, Hypercalcemic and Other Conditions. Helen Rivkin Benjamin and A. F. Hess, New York.—p. 27.
Forms of Calcium and Inorganic Phosphorus in Human and Animal Serums: II. Nature and Significance of Filtrable, Adsorbable Calcium-Phosphorus Complex. Helen Rivkin Benjamin, New York.—p. 57.
Study of Accuracy of McCrudden Method for Calcium and Magnesium in Biologic Materials. D. E. H. Frear and O. J. Kahlenberg, State College, Pa.—p. 85.
Magnesium Content of Plasma and Red Corpuscles in Human Blood. D. M. Greenberg, S. P. Lucia, Myrtle A. Mackey and Elma V. Tufts, San Francisco.—p. 139.
Extraction of Antineuritic Vitamin (Vitamin B_1) from Dried Brewers' Yeast. A. Seidell, Washington, D. C.—p. 195.
Differential Extraction from Dried Brewers' Yeast of Antineuritic (Vitamin B_1) and Growth-Promoting (Vitamin B_2) Vitamins and Their Biologic Standardization, with Note on Relation of Hemin to Vitamin B_2. M. I. Smith, Washington, D. C.—p. 225.
Glutamic Acid in Treatment of Experimental Anemia. T. H. Rider, Cincinnati.—p. 243.
Comparison of Shaffer-Hartmann and Hagedorn-Jensen Methods in Determining Polysaccharide in Tuberculin. Betty Munday and Florence B. Seibert, Chicago.—p. 277.
Unsaponifiable Lipids of Beef Liver: I. Methods of Separation; Crystalline Fractions. F. C. Freytag and H. G. Smith, Iowa City.—p. 309.
Id.: II. Vitamins A and E; Antioxygens. F. C. Freytag and H. G. Smith, Iowa City.—p. 319.
Fate of Tartaric Acid in the Human Body. P. Finkle, New York. —p. 349.
Nature of Saccharoid Fraction of Human Blood. Gladys J. Fashena, New York.—p. 357.

100: 379-602 (April) 1933

Isolation of Catechol from Pigmented Onion Scales and Its Significance in Relation to Disease Resistance in Onions. K. P. Link and J. C. Walker, Madison, Wis.—p. 379.
Methylglycosides of Naturally Occurring Hexuronic Acids: I. Preparation of Methyl-*d*-Galacturonide. S. Morell and K. P. Link, Madison, Wis.—p. 385.
Isolation of α and β, *d*-Mannuronic Acid. E. Schoeffel and K. P. Link, Madison, Wis.—p. 397.
Synthesis of Hexuronic Acids: II. Synthesis of *d*-Mannuronic Acid from *d*-Mannosaccharic Acid. C. Niemann and K. P. Link, Madison, Wis.—p. 407.
Sexual Variation in Carbohydrate Metabolism: II. Metabolism of Diacetic Acid in Fasting Rats and Guinea-Pigs. J. S. Butts, H. J. Deuel, Jr., Los Angeles.—p. 415.
Studies on Adrenal: III. Preparation of Active Extract of Hormone of Adrenal Cortex. A. Grollman and W. M. Firor, Baltimore.—p. 429.
Production of Glucuronic Acid in Scurvy. A. J. Quick, New York. —p. 441.
Effects of Overdosage of Irradiated Ergosterol in Rabbits: Changes in Distribution of Phosphorus in Blood Cells and Plasma. G. M. Guest and J. Warkany, Cincinnati.—p. 445.
Oxygen Consumption of Fasting White Mice. J. E. Davis and H. B. Van Dyke, Chicago.—p. 455.
Oxidation of Cystine in Nonaqueous Mediums: I. Solubility and Stability of Cystine in Nonaqueous Acid-Base Systems. G. Toennies and T. F. Lavine, Philadelphia.—p. 463.
*Copper Content of Urine of Normal Individuals. I. M. Rabinowitch, with assistance of Eleanor V. Bazin, Montreal, Canada.—p. 479.
Determination of Glycogen. C. A. Good, H. Kramer and M. Somogyi, St. Louis.—p. 485.
Factors Influencing Metabolism of Glucose Ingested by Fasting Dogs. Margaret Dann and W. H. Chambers, with technical assistance of J. Evenden, New York.—p. 493.
Is Blood Protein Amide Nitrogen a Source of Urinary Ammonia? III. Question of Synthesis of Protein Amides from Ammonia. E. F. Williams, Jr., and T. P. Nash, Jr., Memphis, Tenn.—p. 515.
Effect of Amines on Yeast Poisoned by Iodoacetic Acid. E. F. Schroeder, Gladys E. Woodward and Muriel E. Platt, Philadelphia. —p. 525.
New Type of Continuous Extractor. R. J. Block, New Haven, Conn. —p. 537.
Studies on Leucine and Dileucine Hydrochloride and New Method for Isolation of Leucine. H. M. Barnett, Cleveland.—p. 543.
Composition of Urine of White Mice. I. A. Parfentjev and W. A. Perlzweig, Durham, N. C.—p. 551.
Note on Precipitation of Small Amounts of Potassium as Potassium Sodium Cobaltinitrite. R. S. Hubbard, Buffalo.—p. 557.
New Colorimetric Method for Quantitative Estimation of Small Amounts of Potassium. A. E. Sobel and B. Kramer, Brooklyn.—p. 561.
Derivatives of Glucuronic Acid: I. Preparation of Glucuronic Acid from Glucuron and Comparison of Their Reducing Values. W. F. Goebel and F. H. Babers, New York.—p. 573.
Synthesis of Tyrosinephosphoric Acid. P. A. Levene and A. Schormüller, New York.—p. 583.
Chemical Structure and Optical Rotation: IV. Configurational Relationship of Disubstituted Acetic and Propionic Acids Containing Phenyl Group. P. A. Levene, R. E. Marker and A. Rothen, New York. —p. 589.

Copper Content of Urine.—Rabinowitch examined the urines of fifty hospital patients, selected at random, except that histories were carefully taken in order to exclude cases in which there was any suggestion of undue exposure to copper from treatment or occupation. The copper content of the urines ranged between traces and 0.41 mg. per liter and between traces and 0.7 mg. in twenty-four hours. The copper contents of the urine of three normal persons observed over a period of ten days corresponded to those noted in the entire group. In two copper "balance" experiments in which the subjects were fed copper, the amounts found were 0.63 and 0.81 mg. per liter and 0.84 and 1.01 mg. in twenty-four hours, respectively.

Journal of Immunology, Baltimore

24: 267-348 (April) 1933

Influence of Pregnancy and Menstruation on Power of Normal Human Serums to Inactivate Poliomyelitis Virus. C. W. Jungeblut and E. T. Engle, New York.—p. 267.
Influenzal Meningitis: Relation of Age Incidence to Bactericidal Power of Blood Against Causal Organism. L. D. Fothergill and Joyce Wright, Boston.—p. 273.
Inheritance as Factor in Resistance to Infectious Disease: I. Uniform Reaction of Inbred Strain of Animals. M. R. Irwin, Madison, Wis. —p. 285.
Id.: II. Differential Host Reactions and Effects of Selection Within a Population. M. R. Irwin, Madison, Wis.—p. 297.
Id.: III. Distribution of Litter Mortalities in Host Populations. M. R. Irwin, Madison, Wis.—p. 313.
Id.: IV. Tests for Evidence of Acquired Immunity in Resistant Population. M. R. Irwin, Madison, Wis.—p. 319.
Id.: V. Correlations Between Resistance of Host and Certain Measured Variables. M. R. Irwin, Madison, Wis.—p. 329.
Id.: VI. Correlation Between Resistance and Bactericidal Power of Whole Blood. M. R. Irwin and T. P. Hughes, New York.—p. 343.

Journal of Infectious Diseases, Chicago

52: 139-278 (March-April) 1933

Agglutinative Classification of Hemolytic Streptococci of Scarlet Fever. J. H. Mueller and Katherine S. Klise, Boston.—p. 139.
Microbiology of Frozen Foods: IV. Longevity of Certain Pathogenic Bacteria in Frozen Cherries and in Frozen Cherry Juice. G. I. Wallace and S. E. Park, Urbana, Ill.—p. 146.
*Id.: V. Behavior of Clostridium Botulinum in Frozen Fruits and Vegetables. G. I. Wallace and S. E. Park, Urbana, Ill.—p. 150.
Lithium Chloride Mediums for Preservation and Recovery of Typhoid Bacillus in Feces. L. C. Havens and Catherine R. Mayfield, Montgomery, Ala.—p. 157.
*Cataphoretic Velocity of Streptococci Isolated in Cases of Encephalitis and of Other Diseases of the Nervous System. E. C. Rosenow and L. B. Jensen, Rochester, Minn.—p. 167.
Anaerobic Gram-Negative Bacilli Isolated from Abscess of the Lung: Toxin Production as Demonstrated by the Shwartzman Phenomenon. J. Cohen, New York.—p. 185.
Agglutination Experiments as Evidence of Diversity of Nonhemolytic Streptococci. H. W. Crowe, London, England.—p. 192.
Investigation of Certain Synthetic Glucosides for Antigenic Properties. A. G. Wedum, Chicago.—p. 203.
Selective Action of Crystal Violet and of Brilliant Green on Bacteriophages. A. Y. Wells and N. P. Sherwood, Lawrence, Kan.—p. 209.
*Analysis of Loewenstein's Method for Isolating Tubercle Bacilli From Blood. M. L. Cohn, Denver.—p. 214.
Actinobacillosis of Cattle in the United States. L. Thompson, Rochester, Minn.—p. 223.
Blood Cultures in Chronic Arthritis. E. F. Traut, Chicago.—p. 230.
Effects of Freezing on Spores and Toxin of Clostridium Botulinum. L. H. James, Washington, D. C.—p. 236.
Hemoglobinophilic Bacilli from Infantile Meningitis. Bernice E. Eddy, Cincinnati.—p. 242.
Effectiveness of Standard Diphtheria Antitoxin Against All Types of Diphtheria Infection. Olga R. Povitzky, Minnie Eisner and Erla Jackson, New York.—p. 246.
*Pleomorphic Organism Showing Relationships Between Staphylococci and Actinomycetes. M. V. Novak and A. T. Henrici, Minneapolis.—p. 253.
*Antibodies in Placental Extracts. C. F. McKhann and F. T. Chu, Boston.—p. 268.

Clostridium Botulinum in Frozen Fruits.—Wallace and Park's investigation was undertaken to determine whether or not botulism could occur through the agency of frozen foods. The data from their studies would indicate that, if foods are canned properly and used immediately after defrosting, there is little danger of botulism from frozen foods. Toxin is not readily destroyed by freezing, but there is little chance of toxin being present in properly prepared frozen foods. Toxin was not produced in these studies before freezing nor, with few exceptions, during freezing. It must be remembered that the inoculations used were massive compared with the natural inoculation encountered in food for canning, and while the few cases in which toxin was formed or liberated during freezing might seem important in this study, in the canning industry they probably would not be so considered because of this difference in inoculation. The spores of Clostridium botulinum are resistant to freezing and once in frozen food they probably remain there for long periods of time. This is not of great importance if foods are canned and frozen properly, and if they are consumed soon after thawing. If foods containing spores are allowed to thaw and stand at room temperature for several days before using, they may become dangerous. This is especially true of frozen vegetables.

Cataphoretic Velocity of Streptococci Isolated in Encephalitis.—Rosenow and Jensen state that the streptococci as isolated from the nasopharynx and other atria of infection, especially the apexes of pulpless teeth, and sometimes from the blood and involved organs of persons suffering from encephalitis and other diseases of the nervous system, possess a characteristic neurotropic cataphoretic velocity. The velocity of the streptococci as isolated in cases of encephalitis shifted toward the slow velocity of the streptococci from influenza during epidemic waves of influenza. The marked neurotropic type of velocity of the streptococci found during convalescence from influenza suggests, perhaps, why encephalitis and other diseases of the nervous system, such as epidemic hiccup, poliencephalomyelitis, radiculitis and neuritis, are so prone to occur following attacks of influenza or epidemics of influenza. The serums of almost all patients having encephalitis and certain other diseases of the nervous system had specific velocity-slowing effects on the respective strains of streptococci isolated in cases of encephalitis and having neurotropic velocity. Cataphoretic measurements of the streptococci isolated from atria of infection and measurements of the specific slowing effect of the serum of the patient have proved of value in the differential diagnosis in puzzling cases.

Isolating Tubercle Bacilli from Blood.—In conformity with earlier observations, Cohn found acetic acid toxic to human and bovine tubercle bacilli, while sulphuric acid is innocuous in the concentration previously recommended (an amount equal to 2 volumes of 6 per cent sulphuric acid for thirty minutes at 37 C.) An analysis of Loewenstein's method (acetic acid hemolysis and a medium containing asparagine, egg and potato flour) discloses that the medium is satisfactory for growing small numbers of tubercle bacilli but that its preparation is unnecessarily involved, as it contains a few unessential expensive materials, and that acetic acid is bacteriostatic to small numbers of tubercle bacilli, as determined by actual static tests and by practical tests with human and animal blood containing tubercle bacilli which were recoverable by another method (sulphuric acid treatment and inspissated glycerin water-egg yolk medium). Acetic acid as used by Loewenstein is innocuous to saprophytic acid-fast bacilli, and if these are present in the blood they may be recovered by this method but not by the sulphuric acid method.

Staphylococci and Actinomycetes.—Novak and Henrici recovered a yellow staphylococcus from triturated, Berkefeld-filtered cultures of an actinomycete after incubation for five weeks at room temperature. This organism was culturally and morphologically identical with staphylococci on ordinary routine mediums. On dextrose agar, rods and branching filaments developed from the coccoid forms. Filaments or rods reverted to cocci when transferred again to plain agar. Smooth and rough colonies were obtained from cultures of the yellow staphylococcus. Rod and coccoid forms appeared in both smooth and rough colonies. A G type culture (similar to the G forms of Hadley) was obtained from aged broth cultures of the organism. The elements in the G culture ranged in size from minute to normal. These G forms demonstrated no filamentous properties and were strictly bacterial in nature. The authors suggest that their observations support the theory that the staphylococci are related to the actinomycetes.

Antibodies in Placental Extracts.—McKhann and Chu made a number of different tests to determine the presence of immune bodies in the placental protein extracts. They observed that protein material obtained from human placentas by extraction with a 2 per cent solution of sodium chloride and refined by precipitation with ammonium sulphate contains substances, presumably antibodies, which (1) neutralize diphtheria toxin, (2) blanch scarlet fever rashes, (3) neutralize poliomyelitic virus, and (4) prevent measles in exposed, susceptible patients. In the course of hospitalization for other causes, fifteen children, nonimmune to measles, became thoroughly exposed to the disease, and in seven cases so closely exposed that infection would seem to have been a certainty. These children received placental protein extracts by intramuscular injection within five days after the exposure to measles. Fourteen of the patients who received the placental extracts escaped measles, while one child, after a period of incubation prolonged to nineteen days, had a mild, modified form of the disease. In contrast to these children who received placental extracts, three children, similarly exposed to measles, received, on the fourth day of exposure, 30 cc. each of adult whole blood by intramuscular injection; modified measles developed in all. Two children who through faulty histories were thought to have had measles and who received no serum contracted typical measles. The experience with these five children indicates the thoroughness of the exposure of the total group and justifies the conclusion that some, at least, of the children who received placental protein extract were protected.

Journal of Pharmacology & Exper. Therap., Baltimore

47: 377-496 (April) 1933

Comparative Pharmacology of Some Condensation Products of Phenols with Aliphatic Aldehydes: Inquiry into Chemopharmacodynamic Relationships. D. I. Macht and W. C. Harden, Baltimore.—p. 377.
Excretion of Morphine by Normal and Tolerant Dogs. W. A. Wolff, Cecilia Riegel and Edith G. Fry, Philadelphia.—p. 391.
Action of Morphine on Mammalian Circulation. C. F. Schmidt and A. E. Livingston, Philadelphia.—p. 411.
Relation of Dosage to Development of Tolerance to Morphine in Dogs. C. F. Schmidt and A. E. Livingston, Philadelphia.—p. 443.
Note Concerning Actions of Pseudomorphine. C. F. Schmidt and A. E. Livingston, Philadelphia.—p. 473.

Journal of Nervous and Mental Disease, New York

77: 345-456 (April) 1933

Effect of Ephedrine on Blood Sugar Mobilization in Chronic Encephalitis: Reversal of Ephedrine Action in Untreated Subjects and Effect of Treatment with Atropine or Hyoscine on Ephedrine Glycemic Reaction. I. Finkelman, Elgin, Ill.—p. 345.
*Relation of Jugular Foramina to Epileptic Seizures and Hydrocephalus. D. B. Davis, Grand Rapids, Mich.—p. 351.
Congenital Ependymal Cyst of Fourth Ventricle: Report of Case and Résumé of Symptomatology and Pathology of Tumors in This Location. T. S. Hill, Ann Arbor, Mich.—p. 358.
Tumor of Parietal Lobe Showing Jacksonian Sensory Seizures Involving Tongue, Face, Thumb and Index Fingers, with Advanced Premature Atrophy of Affected Parts. A. Silverstein, Philadelphia.—p. 371.
Dr. Bancroft and Psychiatry. S. E. Jelliffe, New York.—p. 385.

Relation of Jugular Foramina to Epilepsy.—Davis used the following technic in a series of roentgen examinations of the jugular foramina: The patient is placed in the supine position on a table, with the shoulders at the extreme head end, so that the head and neck extend beyond the end of the table. A Potter-Bucky diaphragm is placed at the head of the table so that its superior surface is 3 inches lower than the table on which the patient is lying. The patient's head is then tipped back until the top of his head, in the region of the lambda, rests on the Potter-Bucky diaphragm. The projection is correct when the angles of the jaws are in the plane which is determined by the focal spot of the x-ray tube, the left external auditory meatus and the right external auditory meatus. Care should be taken that the line between the focal spot and the center of the film is exactly in the midsagittal plane of the skull; then a restraining band is placed across the mandible. The roentgenograms are always made stereoscopically, by shifting the tube 1½ inches in each direction, in the midsagittal plane. Stereoscopic shifts from side to side are not as satisfactory as those made longitudinally. Using a 40-inch target-film distance, an exposure of 300 milliampere seconds may be used, varying in kilovoltage according to the thickness of the patient's head, or a standard setting of 100 kilovolts and 15 milliamperes may be selected, with a variation of the time from five to forty seconds, according to the thickness of the patient's head. The author made studies of forty patients with epileptic convulsions, twenty-nine of whom had foramina which were larger on the right, and eleven on the left. Ten patients presenting varied diagnoses were studied, and nine were found to have the larger foramen on the right and one on the left. The combined areas of the two foramina in ten patients of the convulsive group were found to be less in seven instances than the group presenting varied diagnoses. The author made roentgenograms of seven cases of hydrocephalus, in six of which the foramina were too minute to permit accurate measurement.

Missouri State Medical Assn. Journal, St. Louis

30: 139-184 (April) 1933

Observations on Transurethral Prostatotomy. C. Greenberg, St. Joseph.—p. 139.
Hepatoma with Late Dissemination. W. P. Glennon and R. V. Byrne, St. Louis.—p. 142.
Types of Onset in Pulmonary Tuberculosis. E. E. Glenn, Mount Vernon.—p. 145.
Pyogenic Infections of Terminal Phalanx, with Special Emphasis on Prophylaxis and Treatment. J. G. Probstein, St. Louis.—p. 149.
Polydactylia. G. Gellhorn, St. Louis.—p. 152.
Care of Breast During Pregnancy and Puerperium. F. Emmert, St. Louis.—p. 155.
Soreness in Maintaining Physical Efficiency. G. A. Skinner, Omaha.—p. 158.
Indefensible Use of Morphine by Medical Profession. G. W. Robinson, Jr., and P. A. Johnson, Kansas City.—p. 161.
Conservatism in Tonsillectomy. J. Zahorsky, St. Louis.—p. 164.
*Differentiation of True Diabetes and Pseudodiabetes. B. Y. Glassberg, St. Louis.—p. 165.
Separation of Old Uterine Scar After Multiple Cesarean Sections. A. Van Ravenswaay, Boonville.—p. 167.

Differentiation of True Diabetes and Pseudodiabetes.—Glassberg offers a modification of the long used dextrose tolerance test as a means of differentiating true diabetes and pseudodiabetes. After a fourteen hour fast he makes the patient lie down for an hour's rest, at the beginning of which the bladder is emptied and the urine discarded and the patient is given two glasses of water to drink. After the patient has rested for fifty-five minutes, fasting blood and urine samples are taken for sugar determination. (Only when the fasting true blood sugar is above 175 mg. per hundred cubic centimeters is a diagnosis of diabetes mellitus made and the test omitted.) At the end of the hour's rest the patient should take 100 Gm. of dextrose dissolved in two glasses of water flavored with the juice of one lemon. One hour later, blood and urine samples are taken for sugar determination and the patient is again given two glasses of water. Two hours after this, blood and urine samples are again taken for sugar determination. The author bases his classification on the following data, after the ingestion of 100 Gm. of dextrose: In adequate insulin secretion, prompt secretion, low normal, will show 80 mg. of sugar in 100 cc. of fasting blood, 95 mg. after one hour, and 70 mg. after three hours; fairly prompt secretion, medium normal, will show 80 mg. of sugar in 100 cc. of fasting blood, 150 mg. after one hour, and 80 mg. after three hours; delayed secretion, high normal, will show 80 mg. of sugar in 100 cc. of fasting blood, 270 mg. after one hour, and 120 mg. after three hours. Potential diabetic patients (usually obese persons must be treated for obesity and as diabetic patients) will show 135 mg. of sugar in 100 cc. of fasting blood, 270 mg. after one hour, and from 60 to 120 mg. after three hours. Inadequate insulin secretion in typical diabetic patients will show from 80 to 200 mg. of sugar in 100 cc. of fasting blood, from 230 to 390 mg. after one hour, and from 250 to 470 mg. after three hours. Glycosuria may occur at any of the foregoing blood sugar levels, but by itself it has no significance.

New York State Journal of Medicine, New York

33: 493-556 (April 15) 1933

The Medical Society of the State of New York: Our Responsibilities and Our Obligations. C. G. Heyd, New York.—p. 493.
Control of Medical Activities by the Medical Profession. F. H. Flaherty, Syracuse.—p. 497.
Costs of Medical Care: The Report of the Special Committee Appointed by the Medical Society of the State of New York to Consider the Final Report of the National Committee on the Costs of Medical Care Which Was Issued on Nov. 29, 1932.—p. 499.
Financing Sickness. F. E. Elliott, Brooklyn.—p. 504.
Maxillary Sinusitis: Pathology. A. A. Eggston, New York.—p. 508.
Id.: Symptomatology. J. F. Fairbairn, Buffalo.—p. 515.
Diagnosis of Maxillary Sinusitis. M. F. Jones, New York.—p. 517.
Maxillary Sinusitis: Treatment. F. M. Sulzman, Troy.—p. 519.
*Value of Immune Adult Blood in Treatment of Measles. A. D. Kaiser, Rochester.—p. 521.
*Conductive Anesthesia for Electrosurgical Removal of Tonsils. E. R. Maillard, New York.—p. 527.

Immune Blood for Measles.—On the basis of a study of 214 children exposed to measles, 162 of whom were definitely exposed, Kaiser concludes that during a measles epidemic immune adult whole blood may be effectively used to assure that the patient will have an attenuated attack which confers a permanent immunity. He observed that the use of 10 cc. of whole blood has been sufficient to modify an attack of measles and materially reduce the incidence of complications. The use of 10 cc. of immune whole blood will not completely protect children who have been definitely exposed to measles. Much larger amounts are necessary for complete protection. The use of immune whole blood, usually parental, is simple, safe, inexpensive and effective in the treatment of measles.

Anesthesia for Electrosurgical Removal of Tonsils.—Maillard noted that an injection of a 2 per cent solution of procaine with epinephrine (1:2,500), made in the region of the superior fossa of the tonsils and infiltrating behind the capsule to a depth of about 1 inch, caused complete anesthesia of the tonsil, soft palate and base of the tongue within from five to ten minutes on the injected side. The loss of sensation in these regions is apparently due to an infiltration of the branches of the glossopharyngeal nerve that supply this area. It was possible to repeat this condition at each weekly visit on the same patient for a series of treatments. The author has given approximately fifty injections and has obtained the desired anesthesia in all instances. The postoperative results have been the same as with the use of the various topical anesthetics. The first indication of anesthesia is usually the presence of a nasal intonation of the patient's speech. One of the reactions noted in patients has been the regurgitation of liquid through the nasal orifices when attempting to drink water. This may be attributed to a disturbance of the normal reflex of swallowing, caused by the loss of sensation. There were also a few instances of increased lacrimation and a feeling of warmth on the anesthetized side of the face owing to involvement of the sympathetic nerve fibers. All these reactions were of short duration and not alarming in character.

Philippine Journal of Science, Manila

50: 211-344 (March) 1933. Partial Index

Solar Ultraviolet Radiometry: II. Instruments and Methods. W. D. Fleming, Manila.—p. 279.

Radiology, St. Paul

20: 241-330 (April) 1933

Osseous Development as an Index of Metabolism. E. K. Shelton, Santa Barbara, Calif.—p. 241.
Biologic Effects of Very High Frequency Electromagnetic Radiation. J. W. Schereschewsky, Boston.—p. 246.
Hernia of Lung: Roentgen Observations, with Report of Traumatic Case. H. A. Olin, Chicago.—p. 253.
Terminal Ileum, Cecum and Ascending Colon from Standpoint of Roentgenologist. Cassie Belle Rose, Chicago.—p. 266.
Bilateral Diaphragmatic Hernia. E. A. May, Newark, N. J.—p. 275.
*Significance of Radiologic Findings in Low Back Pain: Review of Five Hundred Cases. W. Duncan, Cleveland.—p. 282.
Quality Determination of Roentgen Rays: Half Value Layer as Practical Method of Estimating Quality of Roentgen Rays. W. H. Meyer, New York.—p. 286.
Roentgen Ray as an Aid in Treatment of Gas Gangrene: Bacillus Welchii Infection: Preliminary Report. J. F. Kelly, Omaha.—p. 296.
Radium in Medical Use in the United States. R. R. Sayers, Washington, D. C.—p. 305.
Indications for Irradiation in Intra-Uterine Bleeding. J. H. Vaughan, Amarillo, Texas.—p. 310.

Radiologic Observations in Low Back Pain.—Duncan reviews the records of 500 consecutive patients with the predominating complaint of distress of one or another type in the lower part of the back. About 170 were women who showed a more marked hollowing of the lower back than normal, free movement in all directions, with the production of typical discomfort on hyperextension of the spine, and tenderness on pressure over the lumbosacral joints and the lower lumbar spinous processes. In two thirds of these patients the roentgenograms were reported as negative, while the other third showed either a sacralization of the fifth or sixth lumbar transverse process, mild arthritic changes, or a slight scoliosis to one or the other side. In no case did the roentgen observations materially influence the treatment instituted, but they substantiated the indications for it. In this type of case, nothing supplants the regimen of adequate rest, the avoidance of fatigue, the elimination of focal infection, the adoption of a sane dietetic routine, the application of local heat, massage, instruction in muscle reeducation, with the correction of mechanical defects, and, in a fairly high proportion of cases, the adoption of a brace or corset. Of the 500 patients, 230 were typified by the short, thickset man who has done heavy work and who from his early thirties may have been subject to recurrent attacks of lumbago, with periods of perfect freedom between attacks. In 158 of these 230 cases there were changes demonstrated radiologically which would have been anticipated from the clinical examination. Many of these patients had an early arthritic process without any radiologic evidence of it. In this group there is a distinct discrepancy between the clinical impression and the radiologic observations in many instances. In the seventy-two cases in which the roentgen observations were reported as normal, it is apparent that, without adequate data obtained from the history and physical examination, the difficulty of the therapeutic problem becomes much greater. In this group the presence of radiologic changes facilitates solution of the problem, but the absence of gross changes does not demonstrate that the disease is not present in these patients with arthritic symptoms. The author concludes that there exists a sufficiently large element of error in the diagnosis of low back pain, regardless of the thoroughness and comprehensiveness of the clinical investigation, to make roentgenographic examination of the area obligatory in order that there may be some degree of certainty as to the fundamental factors involved in the production of the disability.

Southwestern Medicine, Phoenix, Ariz.

17: 111-144 (April) 1933

Tuberculosis Survey of New Mexico. K. Emerson, New York.—p. 111.
Diagnosis and Management of Diseases of Biliary Tract. E. J. Cummins, El Paso, Texas.—p. 113.
Observations on Transurethral Prostatic Resections. K. D. Lynch, El Paso, Texas.—p. 116.
Trichomonas Infection. H. M. Purcell, Phoenix, Ariz.—p. 122.
Renal and Ureteral Calculus. D. M. Davis, Phoenix, Ariz.—p. 124.
Diseases Among the Indians. J. C. Hancock, San Carlos, Ariz.—p. 126.
Epidemic of Mumps. S. J. Tillim, Chin Lee, Ariz.—p. 129.

Virginia Medical Monthly, Richmond

59: 573-636 (Jan.) 1933

Most Generally Prevalent, Most Inadequately Treated, Controllable Chronic Disease. R. B. Osgood, Boston.—p. 573.
Utility and Dangers of Obstetric Forceps. S. A. Cosgrove, Jersey City, N. J.—p. 580.
Management of Chronic Catarrhal Otitis Media. J. F. Culp, Harrisburg, Pa.—p. 584.
Medical Service in Jails and Prison Camps in Virginia. R. K. Flannagan, Richmond.—p. 589.
Need for Research in Mental Hygiene. D. C. Wilson, University.—p. 591.
The General Practitioner in Relation to Mental Hygiene. I. C. Harrison, Danville.—p. 592.
Staphylococcic Infections of Kidney, with Especial Reference to Kidney Carbuncle. L. Brady, Baltimore.—p. 594.
Detachment of Retina: Differential Diagnosis. J. N. Greear, Jr., Washington, D. C.—p. 604.
Physician's Part in Diphtheria Control. V. L. Ellicott, Rockville, Md.—p. 606.
Removal of Wens: Simple Technic. J. B. H. Waring, Cincinnati.—p. 607.
Tuberculous Meningitis in Children: Review of Thirty-Three Proved Cases. T. A. Gibson, Winchester.—p. 608.
Genito-Urinary Tract and Rectal Problems as Part of Gynecology. G. F. Douglas, Birmingham, Ala.—p. 611.

60: 1-66 (April) 1933

Outline of a Personality Study for Office Use. D. C. Wilson, University.—p. 1.
Partial Resection of Stomach for Ulcer. G. P. LaRoque, Richmond.—p. 4.
Postoperative Tetany. J. M. Emmett, Clifton Forge.—p. 7.
Primary Tuberculosis of Tonsils: Report of Case. Complicated by Extension to Pharynx and Soft Palate. H. G. Preston, Harrisonburg.—p. 10.
*Can Intestinal Adhesions Be Delayed? S. Leigh, Norfolk.—p. 18.
Origin and Significance of Certain Forms of Behavior. J. K. Hall, Richmond.—p. 19.
Acute Appendicitis as Observed by Country Doctor. J. N. Clore, Madison.—p. 27.
Recent Advances in Treatment of Burns. H. J. Warthen, Jr., Richmond.—p. 30.
*Treatment of Acute Arsenic Poisoning. W. R. Bond, Richmond.—p. 36.
Blood Transfusion. H. M. Doles, Norfolk.—p. 39.
Ludwig's Angina. R. M. Dehart, Floyd.—p. 45.
Three Sins Against Children: Purgation, Dehydration and Starvation. T. D. Walker, Jr., Newport News.—p. 47.

Intestinal Adhesions.—Leigh believes that, in cases of appendicitis, adhesions can be delayed and that proper drainage materials will drain just as long as necessary, provided real drains are used, the patient is properly elevated, the side position is arranged, and fluids are administered in as large amounts as the patient will stand. Tubes must be large, soft, thick walled and noncompressible. They should extend down into the pelvis and in other directions if indicated. They should be brought out at the outer (right) end of a transverse incision, the bed should be elevated sufficiently high, and the patient placed far enough on the right side to make the outer ends of the tubes their lowest point. Fluids will gravitate readily down to the tubes and run out into the dressings. Wicks of gauze placed lightly in the tubes will facilitate the drainage. As much salt solution as the rectum will absorb should be administered by the rectal drip with a visible dropper. In addition, saline solution may be given subcutaneously and intravenously as indicated. The patient should receive nothing by mouth except water until the stomach will tolerate food, and he should be nourished by intravenous dextrose, though usually simple fluids may be administered on the second or third day. The author concludes that the delaying of adhesions is important in many other than appendix cases, such as gunshot wounds of the abdomen, drainage following ruptured duodenal ulcer, and other infected abdominal conditions.

Treatment of Acute Arsenic Poisoning.—Bond induced arsenic poisoning in apparently healthy dogs, following a twenty-four hour period of starvation. As a source of arsenic he employed solution of potassium arsenite, which he administered from a pipet into a funnel connected with a stomach tube and rinsed down with 25 cc. of tap water. The mortality of a series of thirteen dogs given 0.5 cc. of the solution per kilogram of body weight was 46.1 per cent, and that of twenty-four dogs given 0.75 per kilogram of body weight was 100 per cent. In all animals treated with sodium hydrosulphite, from 0.75 to 1 cc. per kilogram doses of solution of potassium arsenite were employed. The antidote, 100 mg. per kilogram in a 10 per cent solution, was given immediately afterward and rinsed down

with 25 cc. of normal solution of hydrochloric acid. The results indicate that the compound possesses definite value if administered immediately following the oral administration of a fatal dose of potassium arsenite. The author determined that in a fatal dose of arsenic the antidote was ineffective after the lapse of fifteen minutes. While it is often difficult to secure experimental evidence to justify certain conclusions, he believes that sodium hydrosulphite possesses a definite beneficial action in preventing the serious intoxication resulting from sublethal doses of potassium arsenite, and that the time interval of effective treatment would be considerably prolonged with weaker concentrations of arsenic and by the presence of food in the stomach. The antidote itself is of low toxicity. Dogs recover from the oral administration of 1 Gm. per kilogram of body weight. Gross and histologic studies on animals that have received large doses of sodium hydrosulphite reveal no pathologic changes.

West Virginia Medical Journal, Charleston

29: 145-192 (April) 1933

Sinus Disease in Children. V. W. Fischbach, Cincinnati.—p. 145.
*Excretory Urography. B. H. Nichols, Cleveland.—p. 152.
Sudden Heart Death. W. T. McClure, Wheeling.—p. 157.
Eye, Ear, Nose and Throat Pathology in Children. A. P. Hudgins, Hinton.—p. 160.
*Diagnosis and Treatment of Some Common Heart Conditions. S. L. Cherry, Clarksburg.—p. 164.
The Tonsil Problem. A. K. Hoge, Wheeling.—p. 170.
*Migraine: New Therapeutic Approach. E. Podolsky, Brooklyn.—p. 173.
The Physician and the West Virginia White House Conference. G. M. Lyon, Huntington.—p. 175.
Some Phases of Contract Practice: Outline of Some Important Questions Which Deserve Immediate Consideration. R. G. Leland, Chicago.—p. 180.

Excretory Urography.—Nichols states that excretory urography is a valuable adjunct to other diagnostic procedures and is almost universally applicable. This method determines the functional as well as the anatomic condition of the urinary tract. No artificial means should be used to accentuate the shadows, as this precludes the advantages of this method. No greater concentration of the iodine than 5 or 6 per cent will be excreted by the kidney with a normal excretion threshold. The technic of application is comparable to and apparently may be done with no greater difficulty or danger than is encountered in the practice of intravenous cholecystography. An entirely new understanding of some phases of kidney dynamics is illustrated by intravenous urography. For instance, the normally functioning kidney pelvis is almost completely filled instead of empty as was believed formerly. There is a systolic and diastolic rhythm in the pelvis of the kidney. The true shape and position of the ureter can be observed without distortion, and also its peristalsis with alternate narrowing and distention, thus giving a definite identity to the ureteral stricture. The observations of intravenous urography are most valuable in the presence of hydronephrosis and of calculi. This method is not well suited to the study of infectious processes in the kidney other than tuberculosis. Renal tuberculosis in its early stages is also diffcult to diagnose by the intravenous pyelogram. The use of this method of urography eliminates the controversy as to whether or not bilateral pyelograms should be made, and also settles the question as to whether pyelography should be attempted in the presence of renal tuberculosis. The intravenous method does not yield sufficient information in most cases of renal tumor, particularly in the early stages. All information possibly obtainable must be used in the diagnosis of questionable cases, including history, urinary observations, cystoscopic examination, and especially the opinion of a competent urologist.

Diagnosis and Treatment of Common Heart Conditions.—Cherry points out that many of the common heart conditions are easily diagnosed and treated by ordinary clinical means, although graphic methods such as electrocardiograms may be helpful or necessary in doubtful cases. In the diagnosis of heart failure, clinical symptoms are much more important than physical signs or graphic methods. The earliest symptom of cardiac failure is dyspnea, and this should never be minimized but should lead to a careful study of the patient. Many cases of coronary infarctions have in the past been diagnosed as attacks of "acute indigestion," but there is no longer any reason for this mistake. When digitalis is given after the total amount necessary has been calculated and when the heart rate is used as a guide of its maximum effect, there will be no risk of overdosage, and small amounts of digitalis can thereafter be used daily to maintain this effect.

Migraine.—Podolsky reports seven cases of migraine which he treated with ergotamine tartrate. He believes migraine to be initiated by some mental or physical stimulus, which may or may not have a pathologic background. If due to some disease condition, such as an inflamed gallbladder, the diseased organ should be removed. But migraine is an imbalance, and this imbalance must also be destroyed if complete success is to be attained. The migrainous syndrome depends for the most part on the overirritation of the cerebral arterioles. The most logical form of medication is that which aims to depress this overstimulation with its consequent spasm. Ergotamine tartrate seems to be capable of accomplishing this aim.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

56: 1-107 (March) 1933

Dermatomes in Man. O. Foerster.—p. 1.
*Observations on Form and Nature of "Grasping" Movements and "Tonic Innervation" Seen in Certain Cases of Lesion of Frontal Lobe. F. M. R. Walshe and E. G. Robertson.—p. 40.
Rate of Conduction and Refractory Period of Human Sensory Neuron. F. Golla and S. Antonovitch.—p. 71.
Connections of Medial Cell Groups of Thalamus. W. E. L. Clark and R. H. Boggon.—p. 83.
Cortical Flexor Tone in Fore Limb of Cat: Observations on Hemiplegic Attitude in Man. D. M. Blair and R. J. S. McDowall.—p. 99.

"Grasping" Movements in Lesions of Frontal Lobe.—A study of eight patients presenting lesions of the frontal lobe has led Walshe and Robertson to the conclusion that phenomena included under the various headings of "tonic innervation," "the grasp reflex," "forced grasping and groping," and the like are found to be capable of analysis into two separable components, the one volitional and the other reflex. (1) The volitional component includes grasping movements of the fingers, with which movements of the hand and arm through space are sometimes associated. The stimuli to which they are responses are visual and tactile. Often both are operative, and it is only when the patient has the use of vision that movements of the limb as a whole occur. Tactile stimuli alone evoke nothing but grasping movements of the fingers, the hand and arm remaining still. (2) The reflex component consists in the tonic innervation of muscles when, and only when, these are subjected to the proprioceptive stimulus of stretch. Tactile or visual stimuli are not adequate to produce it. It may occur in the conscious or in the unconscious patient, and it is entirely outside the patient's control. The stimulus and the response are fixed and uniform and indicate that one is dealing with a true tonic reflex of the segmental nervous system, and one in which the cerebral cortex plays no part. Of the eight cases which form the basis of the authors' study, six are reported. In all there was evidence of the presence of a lesion involving the frontal lobe, and in all but one there were signs of an associated pyramidal lesion. In this one patient pyramidal signs never developed, and it is probable that grasping and tonic phenomena preceded the appearance of the signs in the others. When found, pyramidal signs are such as to indicate a relatively slight impairment of function in this system of neurons. Apraxia was not observed in any of the authors' patients. Not every one of their patients showed the full range of the grasping and tonic phenomena, and those who have done so have not shown it throughout the whole period of observation. These phenomena develop gradually, reach full development, and then with the progress of the illness they undergo a progressive restriction of range, accompanied by an increasing impairment of consciousness, until finally with the onset of stupor and semiconsciousness nothing remains but tonic innervation elicited by stretching the muscles involved. Under the conditions of a progressive dissolution of nervous function, this component has been the last to disappear. All the patients showed some unequivocal signs of impairment of psychic function—some signs of dissolution of function in the highest cerebral centers—and the authors believe this to be an invariable concomitant of grasping movements, and probably also of tonic innervation.

British Journal of Physical Medicine, London

7: 233-252 (April) 1933

Technic and Dosage of Heliotherapy in Surgical Tuberculosis. A. Rollier.—p. 235.
Treatment of Recent Injuries by Vigorous Physiotherapeutic Methods. W. E. Tucker.—p. 238.
Influence of Pigmentation Due to Light Treatment on Eruption of Measles. R. Aitken.—p. 241.
Physical Treatment of Various Rheumatic Affections of Shoulder. G. Kahlmeter.—p. 242.
Electrical Measurement of Temperature. B. D. H. Watters.—p. 246.

British Medical Journal, London

1: 641-684 (April 15) 1933

Hodgkin's Disease: Pathogenic Agent in the Glands, and Its Application in Diagnosis. M. H. Gordon.—p. 641.
*Biologic Test in Diagnosis of Hodgkin's Disease. C. E. Van Rooyen.—p. 644.
So-Called "Neurasthenia." A. F. Tredgold.—p. 647.
Otitis Media Due to Pneumococcus Mucosus. I. Vitenson.—p. 651.
Pseudocyst of the Pancreas. D. J. Harries.—p. 654.

Biologic Test in Hodgkin's Disease.—Van Rooyen subjected enlarged lymph nodes removed from five patients with Hodgkin's disease to the test devised by Gordon. He obtained three typical positive results, one doubtful result and one negative result. He noted that this lymphadenomatous tissue, when ground, suspended in broth, and kept at 4 C. for more than ten days, produces striking effects when introduced into the brains of rabbits. It was also evident that these effects appear to be specific in character, for it has been shown that similarly prepared suspensions of lymphoid tissue removed in cases that clinically resembled Hodgkin's disease yielded negative results on test. Such cases have included glandular tuberculosis, lymphosarcoma and leukemia, all of which may be regarded as the commonest forms of lymphatic enlargement that may simulate Hodgkin's disease in temperate climates. The author does not give a detailed account of his experiments, which have been directed toward ascertaining the precise nature of the agent responsible for paralysis, ataxia and muscular wasting in rabbits, but the results obtained indicate that the autolysis, disintegration and cellular destruction of lymphadenomatous tissue liberate a product that is capable of producing an encephalitic syndrome in rabbits and guinea-pigs. Neither the inoculum nor the brain of an animal that succumbs to the condition shows the presence of bacteria after lengthy periods of observation. The author believes that the changes produced in rabbits cannot be interpreted on the basis of nervous changes following the introduction of a simple nonspecific irritating substance into the brain. Thus it can be demonstrated that substances such as a streptococcus toxin, sodium nucleate, aleuronat, quinine, urethane or finely powdered glass, which are capable of producing inflammatory tissue reactions, may be introduced into the brain of a rabbit with impunity. Indeed, these irritants may even be introduced in combination into the same animal on repeated occasions without the least visible effect. The author suggests that lymph nodes removed at biopsy in suggestive cases of Hodgkin's disease should not only be examined histologically and bacteriologically but should also be subjected to Gordon's biologic test.

Journal of Anatomy, London

67: 355-490 (April) 1933

Development in Vitro of Young Rabbit Embryos. C. H. Waddington and A. J. Waterman.—p. 355.
Growth of Epiphyses of Long Bones in the Madder-Fed Pig. C. G. Payton.—p. 371.
Observations on Venae Cavae of Certain Mammals. K. J. Franklin.—p. 382.
Involution of Transitory Cortex of Mouse Suprarenal. R. Whitehead.—p. 387.
Variations in Cortical Lipoid of Mouse Suprarenal with Sex and Age. R. Whitehead.—p. 393.
Growth and Mitosis in Mouse Suprarenal. R. Whitehead.—p. 399.
Classification of Upper Lip in Mammals. J. D. Boyd.—p. 409.
Distribution of Vasoconstrictor Fibers in Limbs. E. D. Telford and J. S. B. Stopford.—p. 417.
Note on Afferent Nerve Supply of Facial Muscles. C. P. G. Wakeley and F. H. Edgeworth.—p. 420.
Report of Spinous Processes of Cervical Vertebrae in Series of Egyptian Skeletons. L. R. Shore.—p. 422.
Anatomy of Head of Callorhynchus Antarcticus. H. L. Kesteven.—p. 443.
Notes on Some Anomalous Gibbon Skulls. A. T. Hopwood.—p. 475.

Journal of State Medicine, London

41: 187-248 (April) 1933

Some New Investigations Regarding Old Bacteriologic Problems: Lecture III. Bactericidal Effects of Silver. M. Neisser.—p. 189.
Survey of Diphtheria in England and Wales. J. G. Forbes.—p. 202.
Infection with Bacillus Tuberculosis in Europe and North America. B. R. Clarke.—p. 218.
Eugenics in Relation to Maintenance of Health and Avoidance of Disease. C. P. Blacker.—p. 226.

Journal of Tropical Medicine and Hygiene, London

36: 81-96 (March 15) 1933

Recent Discoveries in Virus Diseases of Tropical Climates. M. H. Finkelstein.—p. 81.
Life History and Habits of British Mosquitoes in Relation to Their Control by Antilarval Operations. P. G. Shute.—p. 83.

Lancet, London

1: 733-784 (April 8) 1933

*Blood Pressure in the Healthy Young Male Adult. H. A. Treadgold.—p. 733.
Addison's Disease Occurring in Course of Pulmonary Carcinoma: Clinical Symptoms. F. J. Poynton, G. P. Wright and L. P. E. Laurent.—p. 740.
High Carbohydrate Diets in Diabetes. J. Eason and D. M. Lyon.—p. 743.
*Butyric Acid in Treatment of Cancer. J. Watson.—p. 746.

Blood Pressure in Male Adults.—On the basis of a study of more than 20,000 cases (male candidates for the Royal Air Force), Treadgold concludes that age, between 18 and 40, and proportionate height and weight have little effect on blood pressure. Abnormal body build is a pronounced factor, blood pressure varying from 118/75 in the lightest underweight group to 132/82 in the heaviest overweight group. Cardiovascular inefficiency, as judged by Royal Air Force tests and standards, accentuates these differences in body build. The emotional factor on first examination is of great importance. It affects mainly the systolic pressure. Although most marked in the unfit, it is comparatively common in fit candidates and its transitory nature is shown by following up such patients during their service. The height of the diastolic pressure is of great value in determining whether these cases are potential cases of raised blood pressure. The psychoneuroses seem to play little part in the causation of raised blood pressure in healthy young adults. Enlargement of the thyroid in these men is associated with a high percentage of cardiovascular inefficiency and, after allowing for this, both systolic and diastolic pressures are slightly above normal. Functional albuminuria has no effect on blood pressure, but glycosuria of the renal or lag type causes a slight rise of both systolic and diastolic pressures. Cases with a past history of scarlet fever show a slight rise in the diastolic pressure only, probably because of unsuspected renal involvement in a small percentage of such cases. Extremely hot climates tend to lower blood pressure, but moderately warm countries produce no effect. Hypotension, even when the systolic pressure is below 100, can be present in perfect health. The characteristics of the fit hypotensive person are a higher degree of cardiovascular efficiency than normal, and a tendency to underweight. It is rarely encountered on first examination owing to the emotional factor, but a diastolic pressure of 70 or below is always suggestive of its presence under normal conditions. Hypotension was present in 3 per cent of the fit pilots. Raised blood pressure, i. e., cases presenting systolic pressure of 140 and over, constituted 6 per cent of the fit pilots. Two per cent have blood pressure of 140/90 and over. Their characteristics were a tendency to overweight and poorer cardiovascular efficiency than normal. Blood pressure is higher on entry than in the normal fit candidate. Pulse pressure varies with the height of the systolic pressure, but relatively large pulse pressures with a low systolic pressure may coexist with perfect health. Small pulse pressures with normal systolic and high diastolic pressure are suggestive of a pathologic cause, and all cases of a persistent diastolic pressure over 90 require investigation irrespective of the height of the systolic pressure. The tendency to either hypotension or hypertension is probably a constitutional one, and such factors as obesity and toxemia, when they affect blood pressure, probably do so by emphasizing this constitutional tendency.

Butyric Acid in Treatment of Cancer.—Watson states that butyric acid has a destructive action on cancer of many

parts of the body, while it has a much less injurious effect on normal tissues; i. e., it is markedly selective. It is useful in cleaning up fungating malignant ulcers and rendering them suitable for treatment by surgery or radium. It can be made to destroy and delay the spread of growths in inoperable cancer of the rectum and stomach, and it destroys superficial papillomas. While the author used butyrate of quinine he was able as a rule to get the cervices cleared but was conscious of the limitations in its power of destruction. Since he has used a mixture of butyric acid and diatomaceous earth, cases of moderate severity have been rapidly prepared for Wertheim's method and the results have been good, without any trouble from pelvic sepsis. The author used a mixture of diatomaceous earth powder and butyric acid (from 40 to 50 per cent) in gelatin capsules. In treating cancer of the uterus the cervix is first curetted to remove as much as possible of the fungating mass. Care must be taken to avoid damage to the bladder and rectum, for the last vestiges of diseased tissue can be removed more safely by the chemical than by the mechanical agent. The cavity is then packed with gelatin capsules filled with the 50 per cent mixture of butyric acid and diatomaceous earth and the vagina is closed by the insertion of a plug of gauze or absorbent cotton. A small quantity of chalk may be placed in the upper part of the plug to neutralize any acid in the discharge. The 50 per cent mixture does little or no harm to the normal tissue and is just strong enough to break down the trabeculae, which are partially involved in the disease, and so opens up the pockets which might otherwise interfere with the complete destruction of the diseased tissues. The author's experience has been that, soon in the course of treatment, the patient is relieved of pain and improves in well being.

Medical Journal of Australia, Sydney

1: 331-358 (March 18) 1933

The Anemias. W. Evans.—p. 331.
*Infection of Placenta and of Fetus by Induction of Labor in Eclampsia. W. J. Penfold and Hildred M. Butler.—p. 336.
Plumbing. H. C. R. Darling.—p. 341.
Nasal Sinusitis in Relation to Pulmonary Tuberculosis. C. M. Eadie.—p. 345.

Infection of Placenta and Fetus in Eclampsia.—Penfold and Butler examined twenty-five placentas, seventeen in cases of antepartum eclampsia, seven from intrapartum and one from a postpartum case. They were unable to isolate from these placentas any organism that appeared to them to be etiologically related to eclampsia. Coliform organisms were frequently found in the placentas of a series of women suffering from eclampsia. The presence of these organisms was closely correlated with the induction of labor. Their presence was likewise closely associated with a high fetal or neonatal mortality, but the authors have no positive evidence from their series that this mortality was caused by the placental infections. The frequency with which coliform infections of the new-born occur, described in the literature, has probably been largely due to infection of the fetus from the contaminated placenta.

1: 359-390 (March 25) 1933

*Syphilis in Children. G. Norrie.—p. 359.
Gastro-Enteritis. L. Male.—p. 364.
Enlargement of Lymphatic Glands in Children. P. L. Hipsley.—p. 368.

Syphilis in Children.—Norrie states that, in order to prevent syphilis in children, both parents should be treated and that the mother should be treated while pregnant, but, failing that, everything depends on the early diagnosis and adequate treatment of the child. Vigorous treatment should be instituted immediately after the diagnosis is made, because children respond more rapidly to treatment. A combined course of arsenic and bismuth compounds has been found to be most effective and is given by means of injections once a week. In urgent cases, the arsenical preparation is given intravenously into a scalp vein or the external jugular vein, and in the older child into a vein of the arm. In cases in which it is difficult to give drugs intravenously, the arsenic preparation may be given intramuscularly in the gluteal region. The bismuth preparation is injected intramuscularly. A course of six doses of neoarsphenamine followed by eight doses of a bismuth preparation may be given as a routine. A small amount of each drug may be given for the first dose, for example, for a baby of a few weeks, 0.075 Gm. of neoarsphenamine may be given intravenously, followed by five doses of 0.15 Gm. each; then 0.5 cc. of an oily preparation of bismuth followed by seven doses of 1 cc. each. The doses may be increased with the age of patients up to 0.45 Gm. of neoarsphenamine and as much as 4 cc. of the bismuth preparation. In the author's patients, few ill effects were seen. No jaundice or dermatitis occurred from the arsenical preparation, but in some cases there was rarely marked vomiting and diarrhea. An interval of one month was allowed after a course of treatment, during which time potassium iodide was given to the older patients. At the end of the rest period, a Wassermann test is done and two full courses of treatment are given after the Wassermann reaction first fails to occur and, if the serum continues to give no reaction, no further injections are given. For the ensuing year, mercury is given orally for two-monthly periods in the form of mercury and chalk, from 0.01 to 0.32 Gm. three times a day, followed by intervals of two months in which no treatment is given. The child is kept under observation for another year, during which time no treatment is given. Wassermann tests are done every six months during this time, and if at the end of this period the tests have yielded no reaction, the child is considered cured.

Chinese Medical Journal, Shanghai

47: 111-222 (Feb.) 1933

Tuberculosis in Kwangtung: According to Age, Sex, Occupation and Economic Condition. F. Oldt.—p. 111.
Tuberculosis Problem in China. G. F. Bume.—p. 128.
Composite Tumors of Salivary Glands: Clinicopathologic Study of Forty-Five Cases. H. I. Chen and H. H. Loucks.—p. 138.
Practical Value of O Agglutination in Widal Test. D. H. Wong and S. H. Zia.—p. 154.
*Occurrence of Late Lactose Fermenting Coliform Bacilli in Dysentery. F. F. Tang.—p. 161.
Household Mosquitoes and Human Filariasis in Amoy, South China. L. C. Feng.—p. 168.
Chinese Female Pelvis: Study in Pelvic Measurements of Two Thousand Two Hundred and Sixty Chinese Women, with Suggestions as to the Probable Normals. Eula Eno.—p. 179.

Lactose Fermenting Coliform Bacilli in Dysentery.—Tang isolated seven strains of late lactose fermenting and one strain of non-lactose fermenting coliform bacilli from eight cases of mild dysentery. The earliest fermentation of lactose was seen on the fourth day and the latest on the fourteenth day. When peptone water was used as the medium for fermentation, the action was further delayed. The late lactose fermenters were classified as members of the genus Escherichia or the so-called colon lactic group and the non-lactose fermenter as a member of the genus of the aerobacter or the aerogenes group according to the Voges-Proskauer reaction and methyl red and other cultural tests. These organisms were distinct from Sonne's bacillus both culturally and serologically. The author discusses their relation to dysentery.

Journal d'Urologie Médicale et Chirurgicale, Paris

35: 377-472 (May) 1933

*Late Results of Treatment of Epididymal Tuberculosis. M. de Langre.—p. 377.
Action of Massive Ureteral Irrigation by Janet's Method: Experiences in Acute Case of Blennorrhagic Epididymitis. G. S. Epstein.—p. 403.

Epididymal Tuberculosis.—De Langre studied the late results of treatment of epididymal tuberculosis in sixty-two cases in Legueu's clinic. The patients were treated by epididymectomy or castration. Twenty-seven were cured or improved, while twenty had genital sequelae, three had urinary sequelae and eleven died from renal or pulmonary tuberculosis, tuberculous meningitis or unknown causes. These poor results are due to the fact that epididymal tuberculosis is usually associated with other tuberculous lesions. These may be pulmonary or renal, bilateral epididymal or vesiculoprostatic lesions. The habitual coexistence of the latter (80 per cent) is the chief cause of the unfavorable prognosis of treatment of epididymal tuberculosis. These lesions usually remain latent but are the point of departure for infection of the other side or of any other organ. A statistical study of the results of various forms of treatment shows that epididymectomy is the best method. This is corroborated by a pathogenic study which shows that epididymitis is usually secondary. In case of a lesion limited to the tail of the epididymis, medical treatment may be tried before resort-

ing to epididymectomy. If the whole epididymis is invaded, epididymectomy is absolutely indicated even if the lesions are extensive, as the testis is often healthy. A small lesion of the testis near the epididymis may be extirpated in conjunction with the epididymectomy. Castration should be reserved for wide invasion of the testis. In case of bilateral lesions, double epididymectomy should be done to protect both testes. In case of advanced lesions, epididymectomy performed on the less affected side will permit castration on the other. Castration should never be bilateral, because of the important internal function of the testes. Surgical intervention must be followed by medical therapy to avoid recurrences and infection of other organs. Periodic examinations of the urine to discover latent renal tuberculosis and periodic examinations of the patient to permit immediate treatment of infections of the other side are recommended.

Presse Médicale, Paris

41: 985-1008 (June 21) 1933

Traumatic Spondylitis with Extensive Osteoporosis of Spine in a Tabetic Patient. André-Thomas, H. Schaeffer and Huc.—p. 985.

Postoperative Hyperazotemia with Dechloruration Cured by Rechloruration: Case. H. Chabanier, C. Lobo-Onell and E. Lélu.—p. 987.

Chronic Nontuberculous Arthritis of Articulations of Sacrum. R. Massart.—p. 990.

Modifications of Arterial Pressure After Injection of Substances Extracted from Urine of Normal Subjects and Hypertensive Patients. E. Dicker.—p. 992.

*Juxta-Articular Nodosities and Their Relation to Syphilis. R. Burnier.—p. 995.

Juxta-Articular Nodosities and Their Relation to Syphilis.—Burnier discusses under the name of juxta-articular nodosities a form of subcutaneous nodules that occur in the vicinity of bones, chiefly around articulations, the olecranon being the site of predilection. They are round or oval and are usually firm and mobile under the skin, but they may soften and ulcerate, leaving a scar. The average number is from two to four, although fifty have been observed. Their development is chronic and they are usually painless. Microscopically they appear to consist of fibrous tissue, partly degenerated. They occur in men and women, most frequently between the ages of 30 and 50. Their incidence is not limited to the tropics, as was formerly believed, but they have been found in all countries. The etiology of these nodules has been much discussed. In tropical countries they seem to have a multiple origin, mycosis, filariasis or frambesia being most frequently involved. In nontropical countries a syphilitic origin is most common. In 98 per cent of nontropical cases of extra-articular nodosity the Wassermann reaction was positive. The nodosities frequently occur together with symptoms of tertiary syphilis, more rarely with symptoms of secondary syphilis and never with a chancre. If a nodule is found in a patient who has never been to the tropics, a test for syphilis should be performed immediately, as it is usually a fibrous or fibroid syphiloma which will probably disappear with antisyphilitic treatment, especially if it is of recent origin.

Revue de Chirurgie, Paris

52: 401-478 (June) 1933

*Method of Cranioplasty: Repair of Cranial Wall by Grafts, Thin Osseous Layers Sawed from Internal Cortex of Tibia. E. Juvara.—p. 401.

Therapy of General Streptococcic Infection. H. Germain.—p. 423.

Spinal Anesthesia with Nupercaine. L. Lambert.—p. 459.

Method of Cranioplasty.—For the reconstitution of cranial defects by autografts, Juvara employs wide, long, thin osseous lamina, sawed off from the interior cortex of the tibia parallel to the cutaneous surface of the bone. The first part of the operation consists in preparing the cranial opening. The soft parts are incised at the site of the old scar, care being taken to keep the dura intact. The periosteum is incised, detached and pushed back a centimeter on the side of the short edges of the gap. The edges are freshened with a chisel, the short edges being given a beveled surface. To obtain the bone graft, an incision is made over the middle of the interior face of the right tibia. The aponeuroses along the edges of the bone are incised and the muscular insertions along the lower edge are detached a little. The length of the desired graft is marked on the periosteum. Starting at the upper mark with a Farabeuf saw, the blade of which is inserted at a right angle, a layer of bone from 1.5 to 2 mm. thick and of the desired length is removed from the surface of the tibia. This thin layer of bone is covered with periosteum on one side; the other side is slightly striated from the action of the saw. This side, which is to come in contact with the dura, is polished with a file and the ends are slightly beveled to fit the beveled short edges of the cranial gap. The osseous plate is then curved by squeezing between the jaws of special pressure forceps designed by the author to be adapted exactly to the convexity of the brain. The graft is then put in place, with the extremities on the beveled edges of the cranial opening. The detached periostal flaps are placed over the graft and sutured with fine catgut to the periosteum of the graft, the skin is sutured and a slightly compressive bandage is applied. The technic described is employed in case of a cranial opening that has the width of the anterior face of the tibia. If the opening is narrower, the graft must be cut down with cutting pliers after its removal or with a chisel before its removal. If the cranial gap is wider than the tibia, two strips of bone are detached from the tibia and grafted into the opening with their edges together. In the rare event of an opening more than twice the width of the tibia, the grafts may be spaced a small distance apart, or three strips of bone may be employed.

Policlinico, Rome

40: 297-356 (June 15) 1933. Surgical Section

Anaphylaxis and Ulcer of Stomach. G. B. Culmone.—p. 297.

Research on Anastomosis of Splenic Artery with Hepatic Artery. V. Ghiron and L. Badalla.—p. 308.

*Importance of Enterococci in Genesis of Phlegmonous Adenitis of Neck. P. Marri.—p. 320.

Congenital Dilatation of Choledochus. L. Ugelli.—p. 343.

Enterococci in Phlegmonous Adenitis of Neck.—Marri states that common agents of phlegmonous adenitis are microorganisms with morphologic, biologic and cultural characteristics that classify them as enterococci. He treated sixteen patients; by intravenous injection in rabbits he isolated the hemolytic and extremely virulent Staphylococcus pyogenes-aureus from the pus of three patients and, in the remaining, he found in pure culture micro-organisms of weak pathogenic power, which he relegated to the group of enterococci. In culture, enterococci differ from micro-organisms of a related group (streptococci-pneumococci) in that they are more variable in form, size and disposition. They have considerable vitality, which generally causes them to be mistaken for hemolytic or nonhemolytic, common, pus-forming streptococci, especially in cultures containing bile. They sometimes develop at outside temperature on ordinary mediums without deriving any advantages from mediums of special composition. On blood-agar their employment varies frequently, their hemolytic properties are negative or intermittently positive and the aspect of brown or slate-gray or greenish colonies is more constant. They have a tendency to develop into anaerobes, especially if recently isolated. They may develop on gelatin at 16 C. and coagulate milk after a lapse of four or five days. They develop best on bile mediums of the strongest concentration. They are capable of development in mediums in which ethylhydrocupreine hydrochloride is found in concentrations of 1:10,000 and 1:20,000. They show a slight resistance to heat (half an hour at 60 C.). They have no real pathogenic effect even in the strongest doses on white mice and on rabbits, in which subcutaneous injection may produce a torpid abscess that is spontaneously cured on opening. Bacteriologic diagnosis is of great importance in cases in which specific serotherapy or vaccinotherapy is held necessary. The clinical course of the disease is generally long and benign, owing to the lack of virulence of the enterococci. The course, however, is more rapid and accompanied by more serious symptoms when the causal agents are the virulent staphylococci. Incisions made in the foci of infection following phlegmonous adenitis due to attenuated bacilli constitute sufficient treatment.

Medicina Ibera, Madrid

1: 817-852 (June 10) 1933

*Quinidine Treatment in Heart Diseases. F. Vega.—p. 817.

Pure Staphylococcic Septicemia: Four Cases. G. Suarez.—p. 830.

Quinidine Treatment in Heart Diseases.—Vega warns against the dangers of quinidine treatment in heart diseases and states that it is advisable to restrict the administration of quinidine (especially of quinidine sulphate) and to prescribe it

only in cases controlled by the electrocardiogram which do not demand the administration of digitalis. Quinidine treatment is indicated in arrhythmia not complicated by cardiac insufficiency, in alterations of the muscular fibers of the heart or advanced mitral stenosis, in early and paroxysmal auricular fibrillation without cardiac decompensation and in arrhythmia of thyrotoxic origin, intractable to the causal treatment. It is contraindicated in cardiac myopathy, in carditis in evolution with active infection, in advanced mitral stenosis of old duration and in cases of intense circulatory insufficiency in which a cardiotonic treatment with digitalis is the only indication to obtain a normal rhythm of the heart. Digitalis, as preliminary treatment to the administration of quinidine, may cause heart failure. Before administering quinidine it is necessary to wait until all the digitalis stored in the organism is eliminated, in order to avoid any dangerous synergetic reaction and because digitalis may produce a latent block of the heart which may rapidly develop by the administration of quinidine and cause death. During the period preceding the administration of quinidine, insulin may be given to great advantage. Although most of the satisfactory results of quinidine are obtained in patients in whom digitalis has not been previously used, it seems advisable to keep in mind that digitalis is the most proper treatment of auricular fibrillation and, on this basis, to administer it in order to reestablish the potentiality of the cardiac muscle by increasing the coronary nutrition. If digitalis does not cause the heart rhythm to become normal, it is advisable to give quinidine according to the indications previously stated. Quinidine treatment gives better results in auricular paroxysmal fibrillation than in chronic fibrillation. The latter, according to Pardee's dictum, is a truly auricular myocarditis in which the administration of digitalis is the only sure resource. Quinidine, because it causes intense depression of the heart, should be carefully prescribed and the physician should observe the patient as frequently as possible. It is for these reasons that its use should be excluded both from emergency medication and from rural practice.

Archiv für Kinderheilkunde, Stuttgart

99: 131-192 (May 30) 1933

Pulmonary Abscess and Pulmonary Gangrene During Childhood. H.-U. Köttgen.—p. 131.
*Clinical Significance of Amidopyrine-Fast Fever in Diseases of Nurslings and Small Children. G. Petrányi.—p. 145.
Experiences with Acetarsone in Congenital Syphilis. Baumbach.—p. 151.
*Relations Between Acetonemic Vomiting and Scarlet Fever. L. von Kostyál.—p. 160.
Gonorrhea in Children. L. von Dobszay.—p. 171.
Incubation Period in Erythema Nodosum. D. von Móritz.—p. 177.
Calcified Solitary Tubercle in Brain in Tuberculous Meningitis. Johanna Borchardt.—p. 181.

Amidopyrine-Fast Fever.—Petrányi observed that, in nurslings and small children who have uncomplicated pneumonia or influenza, the fever can be checked by adequate doses of amidopyrine. If the fever does not disappear, or if the temperature rises again after a while, that is, if the fever becomes "amidopyrine-fast," a malignant change in the primary disease must be assumed (toxic pneumonia, influenza), or a complication is developing or already present. Unsuccessful antipyresis frequently has a diagnostic value in pediatrics, because as a rule the fever becomes amidopyrine fast before the development of the clinical symptoms. Failure of the antipyresis has a prognostic significance, since the fever that becomes refractory during the first few days indicates malignancy of the primary disease. If the fever increases in spite of the administration of amidopyrine, this also is a bad sign. However, the fact that the fever can be influenced by amidopyrine is no proof of the benign character of the disease.

Relations Between Acetonemic Vomiting and Scarlet Fever.—In patients with scarlet fever the history nearly always reveals vomiting and the urine usually contains acetone, according to von Kostyál. He thinks it probable that acetonemia is present before the exanthem becomes manifest. Acetonemia is also present in conditions in which scarlet fever develops as a complication, such as in burns, after surgical interventions, in tonsillitis and after delivery. Moreover, other cutaneous eruptions, such as urticaria, have been noted in patients with acetonemia. Urticaria develops occasionally during menstruation, and it has been determined that menstruation is accompanied by impaired hepatic function, acidosis and acetonemia. The author considers three modes of pathogenesis of scarlet fever, the exogenous (pathogenic micro-organisms) the endogenous and a combination of these two factors. He calls attention to the rôle of the diet in the development of scarlet fever. An excess of milk and eggs, particularly if there is an anaphylaxis toward these foods, impairs the liver, in which case the organism is no longer protected against toxins. The author points out that it would be interesting to determine whether diet can influence the Dick test, or what influence an acetonemic condition exerts on the Dick test. The fact that it was possible to arrest acetonemic vomiting by means of intravenous administration of convalescent serum from scarlet fever patients is another indication of a relation between the two conditions. Persons who do not contract scarlet fever, although they are exposed to it, are not necessarily immune to it but do not develop it because their skin is incapable of producing the exanthem. The author reports the cases of eight puerperal women in one ward, some of whom developed scarlet fever while others developed tonsillitis or tonsillitis with urticaria; yet none of them had had scarlet fever previously, and it is hardly possible that the pathogenic organism was not the same in all these cases. He cites border cases between scarlet fever and acetonemic vomiting. He thinks that the incidence of concurrence of acetonemic vomiting and tonsillitis is practically the same as that of scarlet fever and differs from the latter only by the absence of the exanthem. He does not consider all these ideas "proved facts" but thinks them worthy of further investigation.

Beiträge zur klinischen Chirurgie, Berlin

157: 561-682 (June 14) 1933

*Bone Atrophy After Fractures. E. R. Heydemann.—p. 561.
Criteria for Estimation of Injury to Vertebral Bones in Roentgenograms. C. Gütig and A. Herzog.—p. 593.
Inflammation in Normal and in Goitrous Thyroid Glands. O. Hoche.—p. 602.
Statistics of Roentgen Diagnosis of Conditions of Stomach and Duodenum and Improvement in Method. E. Ruckensteiner.—p. 607.
Cardiospasm in Children. J. Hansen.—p. 617.
True Bilateral Hernia Through Esophageal Hiatus. M. Makkas.—p. 623.

Bone Atrophy After Fractures.—Heydemann states that atrophy of the bone is demonstrable in roentgenograms after a loss of not less than 15 per cent of calcium. Acute traumatic atrophy of the bone is the result of a circulatory disturbance. The author emphasizes that it is the interference with the venous return and the presence of compensatory hyperemia rather than the interference with the arterial blood supply that is responsible. The more tissue destruction, soft or bony, the quicker and the more pronounced is the atrophy of the bone. Extensive traumatization of soft tissues is more likely to cause atrophy of the bone than extensive damage to the bone without much accompanying destruction of the soft tissues. The first evidence of atrophy is usually seen in the metaphyses and in the subchondral areas. Atrophy of the bone delays healing in adults and retards bony growth in the young. Pure atrophy of disuse occurs only in elderly people and is a matter of months, whereas acute traumatic atrophy can be observed as early as two weeks after a fracture. Some degree of atrophy occurs after most fractures and is demonstrable in roentgenograms if sufficient attention is paid to the peripheral portions of the bone close to the joint. The author feels that the subject of atrophy of the bone deserves more attention because it is frequently the cause of pain on passive or active movements.

Medizinische Klinik, Berlin

29: 797-830 (June 9) 1933

*Acute Circulatory Weakness and Its Treatment. J. Külbs.—p. 797.
Significance of Tonsils and of Adenoid Growths for Development of Child. B. Leichtentritt.—p. 800.
Action Mechanism of Parapulmonary Oxygen Administration. E. Flaum and I. Kugler.—p. 804.
Prophylaxis and Therapy of Whooping Cough by Means of Vaccine. E. Stransky.—p. 807.
*Retrogression of Exophthalmos After Ovarian Therapy. L. Halpern.—p. 808.
Spontaneous Rupture of Esophagus. H. L. Popper.—p. 810.
Embolism Following Diphtheria. F. Barber.—p. 811.
New Investigations in Meteorology and Climatology. F. Kerner-Marilaun.—p. 812.

Acute Circulatory Weakness and Its Treatment.—Külbs emphasizes that, although heart and vessels are so closely connected that they can hardly be considered separately, it is

nevertheless advisable to differentiate vasomotor weakness and heart failure in the therapy of circulatory insufficiency. Vasomotor weakness may develop in the course of many different conditions, such as a number of infectious diseases, various forms of poisoning, overexertion and sudden changes in the temperature. He describes two cases indicating that severe, life-endangering conditions may develop as the result of hypersusceptibility to external stimuli or to overexertion, without demonstrable cardiac or vascular involvement. Circulatory weakness may develop in arteriosclerosis, in mitral stenosis and in mental excitations, perhaps as the result of an overtaxing of the extracardial sympathetic nervous system. Acute failure of the cardiac muscle is most frequently the result of mechanical factors, of direct or indirect traumas, or of thrombi in the heart or in the coronary system. That septic infectious diseases may lead to toxic impairment of the musculature has been proved repeatedly. In this event not only the vasomotor apparatus but also the cardiac muscle is at fault. This disturbance can be experimentally produced in animals poisoned by means of digitalis or of strophanthin, and the electrocardiogram usually shows sinus tachycardia, extrasystoles and ventricular fibrillation. Disorders in the lesser circulation, such as spontaneous pneumothorax, hemothorax, pulmonary infarct and pulmonary edema, and disturbances in the coronary circulation may lead to cardiac insufficiency. The author discusses the independence of certain vascular regions and shows how the disturbances in each of them can best be counteracted. In case of the coronary arteries, dilatation can be effected best by means of nitrites, xanthines (caffeine, theobromine or a theophylline preparation) or epinephrine, whereas constriction can be obtained by nicotine. He discusses the treatment of disturbances in the pulmonary system, the cerebral vessels, the splanchnic region and the cutaneous vessels, and of cardiac weakness, operative shock, cardiac asthma, angina pectoris and infarcts.

Retrogression of Exophthalmos After Ovarian Therapy.—Halpern reports the history of a girl, aged 21, who, eight months previously, had developed an exophthalmos on the right side. An enlargement of the thyroid was not noticeable and the basal metabolism was normal. But at times there was slight tachycardia, and the fingers showed a slight tremor. There were no signs for a local etiology of the exophthalmos. The history revealed that menstruation, although regular, was of short duration and that the flow was scanty. Libido was entirely absent. The genitalia were somewhat hypoplastic. The assumption of a correlative regulation of the incretory organs and the ovarian insufficiency (scanty menstruation, hypoplastic genitalia, lack of libido) induced the author to try ovarian therapy. The patient was given desiccated ovarian substance three times daily. After three weeks a considerable improvement of the exophthalmos was noticeable and the menstruation that set in during the third week of the ovarian treatment was more profuse and lasted longer. After the exophthalmos had largely disappeared, an attempt was made to discontinue the ovarian therapy, but the protrusion of the eye returned. After five weeks the exophthalmos had completely disappeared.

Münchener medizinische Wochenschrift, Munich

80: 875-914 (June 9) 1933

*Ileus. W. Anschütz.—p. 875.
Mineral Metabolism in Nurslings. E. Rominger and H. Meyer.—p. 879.
Genuine Epilepsy. G. Stertz.—p. 881.
Aspects of Monolymphocytic Angina. F. O. Höring.—p. 883.
Care of Health and Beauty of Eye. L. Heine.—p. 885.
*Surgical Disorders of Stomach and Human Psyche. A. Krecke.—p. 888.
Staphylochiniofon. A. Gäch.—p. 891.
Early Treatment of Poliomyelitis. K. Ochsenius.—p. 891.
Puncture Scalpel. H. Walawelski.—p. 893.
Further Suggestion for Introduction of Uniform Records for Blood Donors. F. Puntigam.—p. 893.
Effective Method of Resuscitation in Drowned Persons. F. Mocny.—p. 894.

Ileus.—In discussing diagnosis, Anschütz states that during the early stage the symptom of the metallic, splashing sound is significant, provided it is accompanied by intestinal occlusion that cannot be overcome by enemas. He emphasizes the great diagnostic value of roentgenoscopy and states that the contrast clyster does not have to be feared, since it is less trying for the patient than a rectoscopy. He discusses the indications for surgical intervention and he stresses the value of early operation. As to the method of operation, he advises that the incision be made as near the obstruction as possible and that eventration be avoided. Evacuation of the obstructed intestine during the operation he considers unnecessary and inadvisable. He points out that in case of incarcerated hernia evacuation is not done, although the condition of the intestinal wall and the intestinal contents are practically the same as in ileus. Moreover, evacuation involves great dangers, particularly infection, and is inadvisable in view of the reestablishment of the intestinal peristalsis. In comparing the results of operations in which the intestine was opened with those of interventions in which the intestine was left intact, the author found that the mortality rate was much smaller in the latter group (21 per cent compared to 64 per cent). These figures, as well as the analysis of the causes of death and the age of the patients in the two groups, convinced the author that the advantages of evacuating the intestine during the ileus operation do not outweigh the disadvantages.

Surgical Disorders of Stomach and Human Psyche.—Examination of 942 patients with gastric complaints revealed to Krecke that 186 had carcinoma and 242 had ulcer, while in 514 anatomic changes were not detectable. Most of the latter group had so-called primary gastro-intestinal disturbances. The examination revealed in most cases irregularities in the hydrochloric acid secretion, such as anacidity, subacidity or hyperacidity. Others had gastroptosis and still others were troubled with spastic conditions of the colon. However, the author is convinced that these disturbances are not the true cause of the disorder but that in the majority of these patients the psychic equilibrium is impaired. It has been proved that psychic impressions exert great influence on the function of the gastro-intestinal tract, and the anamnesis should aim to determine whether a psychic trauma preceded the gastric disturbances. It is necessary for the surgeon to have some psychologic knowledge, so that he may have an understanding of the psychic origin of certain disturbances. Many patients report spontaneously that their gastric disorder dates back to a great shock, anger or sorrow. The repetition of irritating experiences may cause the gastric disturbances. Merely to tell him that the disorder is a nervous condition is inadvisable, because "nervous" means to the average layman simply "imaginary." If the examination reveals that the hydrochloric acid secretion is disturbed, the patient should be told so, for this generally satisfies him. The physician may explain that this disturbance in the acidity is due to a change in the sympathetic nerves or in the solar plexus. If roentgenoscopy reveals changes in the duodenal bulb, the patient may be given an explanation of this condition. It is inadvisable, however, to designate disturbances in the intestinal activity simply as constipation, but it should be explained as a spastic condition of the intestine.

Strahlentherapie, Berlin

47: 201-400 (June 7) 1933. Partial Index.

Interrelations Between Changes in Capacity of Reticulo-Endothelial System to Store Dyestuff, Bactericidal Power of Blood and Mineral Content of Tissues in Irradiated Rabbits. Y. Koga.—p. 201.
Recent Opinions About Nature of Photochemical Processes and Their Relations to Biologic Processes. W. Frankenburger.—p. 233.
Measurement of Quality of Rays. H. Holthusen and R. Braun.—p. 263.
*Therapeutic Modification of Polycythemia Rubra by Roentgen Rays. H. Holfelder and A. Reisner.—p. 274.
Urinary Pigments After Roentgen and Radium Irradiations: Influence of These Rays on Erythrocytes. K. Herold and H. Meissner.—p. 291.
Permanent Sterilization by Radium. P. Jonen.—p. 309.
Chorio-Epithelioma of Vagina Cured by Radium. F. Gál.—p. 322.
Granulosa Carcinoma of Ovary: Especial Position in Regard to Clinical Aspects, Histology and Ray Therapy. H. O. Kleine.—p. 326.
*Clinical Experiences with Protracted-Fractional Intensive Roentgen Irradiation in Inoperable and Relapsing Malignant Tumors of Genitalia. P. Schumacher.—p. 338.
Exclusion of Kidneys by Means of Roentgen Irradiation. E. Navratil.—p. 348.
After Treatment of Extirpated Roentgen Carcinoma. K. Gütig.—p. 390.
Abnormal Hair Growth As Result of Roentgenologic Examination. H. Schlathölter.—p. 393.

Roentgen Therapy of Polycythemia Rubra.—Holfelder and Reisner report the histories of fifteen patients with polycythemia. In fourteen the polycythemia was the Vaquez-Osler type with enlargement of the spleen and with normal or slightly increased blood pressure, and in one it was of the Gaisböck type with high blood pressure but without enlargement of the spleen. The authors gained the impression that roentgen irra-

diation of the marrow of the tubular bones influences the blood picture as well as the general condition, and they irradiated the tubular bones in the following sequence: both legs below the knee, the right thigh, the left thigh, and the upper part of the right and left arms. Since the marrow of the sternum is an important element in polycythemia, they irradiated it also, and in severe cases they applied the roentgen rays likewise to the spinal column; but they do not consider so important the irradiation of the flat bones, particularly the scapular and pelvic bones, although some authors have expressed the opinion that the increased hematopoiesis of polycythemia involves mainly the short and flat bones. In order to be effective, the single doses should be from 70 to 90 per cent of the unit skin dose, for smaller doses do not produce such good effects. It is advisable to irradiate the tubular bones in rapid sequence, because smaller doses administered after longer intervals readily accustom the patient to the rays. In successful irradiation, the total doses varied between 6,000 and 12,000 roentgens administered in from four to seven weeks. The irradiated fields should be as large as possible (20 by 24 cm.). If there is a relapse, irradiation should be repeated but the patients are usually well for from nine months to two years and the tissues have time to recover from the effects of the large doses sufficiently, so that a new series of treatments can be given without danger. Roentgen irradiation of the entire body has also been recommended for the treatment of polycythemia, but the authors consider irradiation of the spleen, included in this generalized treatment, a disadvantage and therefore recommend that the spleen be cut off from the rays by lead protectors. Bucky obtained a decrease of the erythrocytes by irradiation with borderline rays. The slight penetrability of these rays makes it doubtful whether they influence the bone marrow directly, and Bucky supposes that the bone marrow is influenced indirectly by way of the cutaneous sympathetic nervous system. The authors think that irradiation of the marrow of the tubular bones by means of large fields and high doses of hard rays is still the method of choice in the treatment of polycythemia.

Roentgen Irradiation in Inoperable Tumors. — The favorable results obtained with protracted fractional intensive roentgen irradiation in inoperable carcinomas of the tongue, the tonsils or the hypopharynx induced Schumacher to employ the same treatment in inoperable or relapsing malignant growths of the female genitalia and of the breast. His technic was such that only one field was irradiated a day with a surface dose of 200 roentgens. When the general condition or the blood status was greatly impaired, the irradiation was discontinued for several days. In tumors of the genitalia the rays were generally applied to four fields, two abdominal and two sacral, or one abdominal, one dorsal and two lateral fields. The focus-skin distance was from 50 to 60 cm. Carcinoma of the breast was usually irradiated as one field and at a distance of from 70 to 80 cm. The aim was to apply ten times 200 roentgens to each field. The focus doses averaged from 2,000 to 3,000 roentgens. The treatment required as a rule from four to six weeks. In the beginning the irradiations were usually well tolerated, but toward the end the patient's general condition was frequently such that the irradiations had to be interrupted for a while. Nearly all the patients lost weight. The blood counts, taken twice a week, revealed a decrease of the leukocytes, particularly the lymphocytes, but the changes in the other formed elements of the blood were relatively slight. Generally, the skin reactions did not appear until after the sixth application, but toward the end of the irradiations the fields were swollen, erythematous and sprinkled with red stippling. The sacral field often showed considerable exfoliation, which subsided within three weeks. The urinary bladder and the intestine, which in the pelvic irradiations received considerable doses, showed comparatively slight reactions. Of eight inoperable carcinomas of the uterus, three reacted so favorably to the treatments that only small remnants persisted at the end of the treatment, while three similar cases remained refractory and two were exacerbated during the treatment. Two recurrences in the lateral pelvic wall disappeared entirely following the protracted treatment, but a number of uterine carcinomas that had already been unsuccessfully treated with radium were refractory to protracted intensive roentgen treatment. In twelve inoperable ovarian carcinomas the therapeutic results of the protracted roentgen treatment were considerably more favorable than in the uterine carcinomas. Not one of the twelve cases was entirely refractory. Recurrences of mammary carcinomas likewise reacted favorably. However, sarcomas could not be influenced by means of this method. A disadvantage of the protracted roentgen irradiation is that the initial favorable results may eventually be reversed later, in that the metastases grow faster. The author considers this a warning against forced irradiation and against a further increase in the dosage administered at one sitting.

Bibliotek for Læger, Copenhagen

125: 143-174 (April) 1933

Investigation on Kidney Function According to Rehberg's Creatinin Method. H. C. A. Lassen.—p. 143.
*Phosphatases of Organism. E. Jacobsen.—p. 162.

Phosphatases of Organism.—Jacobsen's experiments indicate that the same enzyme sets free the various phosphoric esters, and he suggests the term "general phosphatases" for this enzyme. His further experiments establish a new, specific phosphatase. The substrate is found in the phosphates of the blood corpuscles. The new principle is relatively abundant in liver extracts, in which the content of general phosphatase is small, while kidney extracts, in spite of a large content of the general phosphatase, poorly set free the phosphates of the blood. Treatment with alcohol weakens the new principle more than the earlier known principle and, unlike the latter, it is not destroyed by heating in weak acid solution.

Finska Läkaresällskapets Handlingar, Helsingfors

75: 319-420 (April) 1933

Occupational Mercurialism. J. Almkvist.—p. 319.
*Skin Tuberculosis in Lepers. H. P. Lie.—p. 338.
*Rosacea-Keratitis. A. Kissmeyer.—p. 346.
Casuistic Contribution to Question of Skin Pigmentation and Addison's Disease. R. Ehrström.—p. 355.
*Pathogenesis and Therapy of Eclampsism. K. A. Hoffström.—p. 360.
Histologic Changes in Mammary Glands in So-Called Gynecomastia and Its Relation to Cystic Mastopathy in Men. C. von Numers.—p. 388.

Skin Tuberculosis in Lepers.—Lie reports a case of leprosy with scrofuloderma of the neck. Typical tubercle bacilli were cultivated from the swollen lymph nodes of the neck. Necropsy showed tuberculous changes in these glands and in one bronchial gland. He states that, since different disorders may appear simultaneously in leprosy, the causes of processes not typically leprous must be carefully studied and not simply referred to the lepra bacillus.

Rosacea-Keratitis.—Kissmeyer describes a marked case in a woman, aged 33, with pannus-like vascularized infiltration, deep subepithelial whitish, often calcium-like, infiltration and ulceration of the cornea. He believes that a number of the cases described as rodent ulcer of the cornea are probably of the rosacea kind. Therapy consists partly in application of sulphonated bitumen-zinc-petrolatum ointment and partly in removal with a sharp curet.

Eclampsism. — Hoffström ascribes the primary cause of eclampsism to a hypocalcemia due to hypofunction or dysfunction of the parathyroid glands and finds his theory supported by the results of experiments with a four-day treatment plan. After venesection a combined treatment with parathyroid hormone, vitamin D and calcium is given, the first two days with inanition treatment and greatly limited water intake.

75: 421-512 (May) 1933

Arteriospasms in Perniosis. H. Haxthausen.—p. 421.
Generalized Zoster, One in Lymphatic Leukemia and One in Aleukemic Lymphadenosis: Two Cases. K. Marcus.—p. 429.
Tuberculous Lymphangitis in Penis. E. H. Hansteen.—p. 435.
Investigations on New Meinicke Clarification Reaction with Seven Different Readings. H. Boas.—p. 438.
Rabies in Finland. B. Grönroos.—p. 443.
*Atypical Amyloidosis. B. von Bonsdorff.—p. 447.

Atypical Amyloidosis.—In von Bonsdorff's patient, aged 51, there developed shortly after fracture of a rib and within two or three months firm, symmetrical tumor formations up to the size of a child's head, in the region of the large joints, with one below the right shoulder. Small, button-shaped tumors appeared on the tongue and in the oral mucous membrane. The tumors are thought to have originated in the soft parts and the destructive changes, roentgenologically established in the osseous system in the vicinity of the tumors, are assumed

to be due to pressure exerted by the tumor mass. These changes affected the bone marrow, causing a disturbance in the calcium metabolism with a tendency to hypocalcemia at the start of the disorder and hypercalcemia at the end. There were increasing exhaustion, without noteworthy increase in the size of the tumors, and fatal outcome after one and one-half years. The tumors, well defined from the surrounding tissue, consisted of deposits of a whitish yellow, homogeneous, amyloid-like substance, structureless and metachromatically stainable with cresyl and gentian violet. Transportation of the amyloid-like substance had apparently occurred to the regional lymph nodes. The kidneys revealed numerous atrophied glomeruli with signs of nephrosis. The tumor mass consisted mainly of a protein substance from which nine different amino acids were differentiated. Thirty-three cases of amyloid tumors are cited. The author ascribes classic as well as atypical amyloidosis to disturbances in the protein metabolism of the organism. In his opinion a relation exists between myelomas and atypical amyloidosis, whether or not the latter appears with multiple myelomas. He believes that in his case trauma was a factor in the origin of the atypical amyloidosis.

Hygiea, Stockholm

95: 369-416 (May 31) 1933

Effect of Chaulmoogra Oil on White Blood Corpuscle Roentgenogram. Ada Olsson.—p. 369.
*Bacteriophage Therapy of Infections of Urinary Tract. J. Hellström.—p. 372.

Bacteriophage Therapy of Infections of Urinary Tract.—Hellström's attempts with this treatment have not been encouraging, but he believes that with close cooperation between clinician and bacteriologist bacteriophage therapy may become more valuable.

Norsk Magasin for Lægevidenskapen, Oslo

94: 593-712 (June) 1933

Investigations on Blood Pressure in Healthy Men, Especially with Reference to Occurrence of Low Blood Pressure. H. J. Ustvedt.—p. 593.
Roentgen Examination of Postoperative Venous Blood Stream: Preliminary Report. J. Frimann-Dahl.—p. 609.
*Atypical Traits in Dementia Paralytica. H. Sæthre.—p. 612.
Intravenous Anesthesia with Evipan-Sodium. S. Widerøe.—p. 621.
*Gradenigo's Syndrome and Inflammation in Pyramidal Apex (Petrositis, Apicitis). A. Galtung.—p. 625.
*Multiple Tuberculous Spondylitis. H. Thrap-Meyer.—p. 641.
Balantidium Coli Diarrhea and Intestinal Polyposis. O. Hanneborg.—p. 650.
Contribution to Treatment of Condylar Y Fractures with Some Fractures of Diaphysis: Preliminary Report. M. H. Gjessing.—p. 660.

Atypical Traits in Dementia Paralytica.—Sæthre says that out of 135 cases of dementia paralytica without any antisyphilitic treatment four presented a completely negative Wassermann reaction in the blood and spinal fluid. One of these, observed for one year during which no treatment was given, gave a negative Wassermann reaction at four different times. Necropsy disclosed a typical picture of dementia paralytica. Two cases present exceptions to the rule that patients with neurorelapse do not later on develop dementia paralytica. In the fourth case, one of locomotor ataxia treated with malaria, paroxysmal megalomania ("psychic Jackson spasms"), developed one and one-half years later. This gradually changed to a fairly typical dementia paralytica.

Gradenigo's Syndrome and Inflammation in Pyramidal Apex.—Galtung reports four cases in which Gradenigo's syndrome appeared after an acute otitis media, in one case before, in the three after, antrotomy. All patients recovered, one after antrotomy alone, two after antrotomy with revision, and one after conservative medical operation according to Bárány with subsequent Frenckner's petrositis operation. In only one case was there roentgenologic and clinical proof of inflammation in the pyramidal apex. In a fifth case necropsy showed inflammation in the pyramidal apex without its having produced Gradenigo's syndrome wholly or in part.

Multiple Tuberculous Spondylitis. — Thrap-Meyer describes seven cases, six presenting two tuberculous foci in the spinal column and one presenting three, all separated by sound vertebrae. A lymphohematogenic origin of these multiple foci is regarded as most frequent and probable, and contact infection through a sedimentation abscess extremely rare. In one of these cases the latter mode of infection is thought probable. In all the cases the subjective symptoms were localized about the caudal focus. There were no symptoms from the spinal cord.

Ugeskrift for Læger, Copenhagen

95: 633-662 (June 1) 1933

Perforating Gastric Ulcer: Epidemic Serositis—Epidemic Myalgia. E. Warburg.—p. 633.
*Intestinal Invagination in Children. H. Thomsen.—p. 639.
Investigations on Capillary Resistance in Copenhagen School Children with Reference to Vitamin C Deficiency in Diet. C. Friderichsen and M. Petri.—p. 643.
Operation for Hammer-Toe in Little Toe. A. Berntsen.—p. 646.

Intestinal Invagination in Children.—Thomsen reports thirty-three cases treated operatively without attempted bloodless reposition from 1917 to 1932. Of this number the seventeen children operated on within twenty-four hours all recovered, together with three others. The total mortality was 39 per cent.

Upsala Läkareförenings Förhandlingar, Uppsala

38: 1-438 (May 20) 1933

Causes of Disease According to Israel Hwasser: Medicolegal Study. G. Johnsson.—p. 1.
*Contribution to Knowledge of Tuberculosis of Aorta and Tuberculous Aneurysm of Aorta. N. Gellerstedt and O. Säfwenberg.—p. 165.
Significance of Modern Hormone Study in Gynecology. A. Westman.—p. 183.
*Contribution to Knowledge of Changes in Brain in Normal Involution of Age. N. Gellerstedt.—p. 193.
Uppsala Medical Society 1832-1932: Pages from History of Our Medical Development. U. Quensel.—p. 409.

Tuberculosis of Aorta and Tuberculous Aneurysm of Aorta.—Gellerstedt and Säfwenberg describe a case of arrosion of the abdominal aorta due to an old cheesy paravertebral tuberculosis of the lymph nodes. As a result of the arrosion a false retroperitoneal aneurysm developed, which caused a rupture-like protrusion of the diaphragm into the pleural cavity. The roentgen diagnosis was intra-abdominal tumor. On operation the pulpy discharge from the tumor suggested sarcoma or Grawitz tumor. Death was due to hemorrhage. Necropsy revealed an extensive miliary tuberculosis in most of the organs with notably small and closely located tubercles, to some extent localized in the glomeruli in the kidneys and having a marked tendency to necrosis in the liver and spleen. The twenty cases of tuberculosis of the aorta with formation of aneurysm found in the literature are cited. Diagnosis has not yet been made during life, but in the author's opinion this should theoretically not be impossible.

Changes in Brain in Normal Involution of Age.—The results of the examination of fifty brains of persons aged at least 65 years, mostly from the middle class of Munich but including two of the élite, are discussed by Gellerstedt, with remarks on the pathogenesis and the relations between anatomic results and clinical symptomatology. He says that in the aging brain the reduction of ganglion cells in the cerebral cortex usually occurs in tracts. With regard to fatty changes in the ganglion cells, earlier results are confirmed. The atrophy of the nerve cells of the cerebral cortex is not seldom combined with the appearance of atrophied or sclerotic ganglion cells. Granulovacuolar degeneration seems to be common in normal old age but localized in Ammon's horn. Alzheimer's change in the filaments is not uncommon even in mentally normal aged persons but is practically always localized in the allocortex of the temporal lobe. The senile plaques occur far oftener than is commonly supposed, with several local variants and types. Atrophy of medullary fibers is frequently demonstrable, at least in the cortex. The typical qualitative changes of the glia cells show a slightly progressive character. Regressive changes in the glia cells do not belong to the senile picture. The fatty changes in the glia afford a good indication of the degree of tissue atrophy. Histologically demonstrable iron is more extensive in the aging brain than was thought formerly. "Concrements" containing iron, probably never absent in the aged brain, vary greatly individually. Senile fibrotic changes of the blood vessels are to be distinguished from regular arteriosclerosis and probably play a part in the origin of many histologic changes of the aging brain. Plexus sclerosis is to be regarded as a phenomenon of age. Ependymitis is not characteristic of age.